FLASHES AND PLUGS

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Juan's girl in Havana had asked him to bring back, as a present, a Manhattan directory. Juan had paid four dollars* (to city slickers) for the book and then had lost it. His lament continued:

"She don't believe me. You know the women! She thinks I forgot to fetch the directory. She don't believe I spent $4.00 dollars in a woman whim.

"Oh who invented girls?

"Will you be so kind as to sending me a phone directory? I am in love. I don't want lost her. When you was a boy, sure you was in trouble for a girl and perhaps somebody help you then. Tomorrow I will help some boy. We are only the strong sex, but they are the fair sex. What a sex!

"Will you? Thanks a million.

The AT&T company sent Juan a free directory in short order.

*Originally he could have bought one from the company for $2.00.

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Then he disrupted the telephone system by punching the buttons that switch calls.

When he beaned a lieutenant with a flashlight, the officer ordered patrolmen to place the child in a police cruiser and to look for his parents.

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"For one simple reason," was the reply. "She can't tie telephone calls with a blue ribbon and put them away in a drawer."—Northwestern *Bell*.

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Names and telephone numbers also were provided.

CIRCULATION

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

July 3, 1954

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★ ★ ★ IN THE ★ ★ ★ NATION'S CAPITAL

by FRANCIS X. WELCH — WASHINGTON EDITOR

Joint Committee holds hearing on bill to turn over federal property in "atom cities" to local governments. CWA holds annual convention. Montana Supreme Court holds co-ops not protected against competition. U. S. Supreme Court upholds federal law regulating lobbying.

AN INTERESTING one-day, one-man sub-committee hearing was held in Richland, Wash., on a bill (H. R. 8861) to turn over federal property in so-called "atom cities" to the local municipal government. This bill, which has previously been mentioned in this department, follows the Eisenhower administration pattern of getting the federal government out of local affairs as much as possible.

The bill specifically mentioned the two "atom cities" of Richland, Wash., and Oak Ridge, Tenn. It is designed to strengthen and assist local self-government by turning over to the city authorities various federal properties constructed and developed by the Atomic Energy Commission (AEC) in the process of its own important work for the national defense. These properties included highways, schools, hospitals, libraries, and the usual accouterments of a livable community. But they also included some public utility facilities operated by the AEC during the development days of Richland. That is where the question arose.

The one-day, one-man sub-committee hearing of the Congressional Joint Atomic Energy Committee was held on June 19 by Representative Cole (Rep., N. Y.), who is also chairman of the joint committee. Cole went out to the Pacific Coast for that purpose.

It appeared that both privately owned and operated telephone and electric utility companies were interested in acquiring and operating the respective service facilities at Richland. But so was the town council of Richland. And the competition did not stop there. Benton County Public Utility District wanted the chance to acquire the electric power facilities if approved by the voters of the city.

The two business-managed utilities represented at the hearings were General Telephone Co., which offered to take over the telephone services, and Pacific Power & Light Co., which sought to purchase the electric distribution system heretofore owned and operated by the federal government. Both of these utility companies were willing to *pay* a reasonable price to acquire the facilities, whereas the city and county utility district wanted to acquire them without cost, under the terms of the bill.

The case of General Telephone Co. was based on the fact that General used to serve and had held a franchise in that area, before AEC came on the scene. General Telephone still serves part of the area, outside of AEC control.

But the Richland City Council opposed the suggestions of General Telephone Co. The city would like to obtain the telephone system as a municipal venture because it thinks it could make some money out of it. The attorney general of the state of Washington took a contrary view. He advised the Richland council that the city does not have the power to operate a telephone system under Washington law. He recommended against the city's entry into this field.

It will probably be a little while before it is definitely known what the Joint Atomic Energy Committee decides to do about this. But the result may be a change in the bill so as to allow commercial utility companies to bid on the acquisition and operation of some of the facilities. There was no opposition, of course, to the city acquiring such items as highways, recreational, educational, and other facilities normally operated by city governments.

CWA Convention

This year's annual convention of the CIO Communications Workers of America, at Cleveland, O., was comparatively routine. There were some important resolutions on collective bargaining. A wage contract with Michigan Bell Telephone Co. was announced as a possible model for wage contract renewals with other Bell System companies. But, by and large, the remaining work of the eighth annual convention was to elect regional and national officials, as required under the terms of office. There was the usual panoramic multitude of resolutions, touching almost every major controversy in the field of current political economy in the United States.

CWA President, Joseph A. Beirne, opened the five-day meeting at the Cleveland Municipal Auditorium. He claimed the CWA membership is now at a peak membership of 300,000. He said that progress has been made during the past year in the signing of a "no-raid" agreement between the CIO and AFL.

Among the resolutions adopted were the following:

(1) Opposed federal wire-tapping regulation proposed between federal administration, regardless of the purpose of such wire-tapping.

(2) Recommended the expansion of the Tennessee Valley Authority for construction of new generating equipment.

(3) Recommended revision of the Taft-Hartley Act and an increase in minimum hourly wage standard from 75 cents to $1.75, as well as the elimination of the exemption of operators' wages at small telephone exchanges.

(4) Instructed the president of the CWA to contact telephone industry management to request the formation of a labor-management committee, to examine the problem of employment opportunities in the telephone industry.

(5) Urged numerous points for collective bargaining, including a rather abusive criticism of the Bell System practice of deducting one-half of social security payments (management pays the other half) from company pensions.

Altogether, there were 28 resolutions in the advance schedule, many of which

were rather formal. The convention pledged to conduct "vigorous political action" and urged all CWA locals to establish Political Action Committees and support the drive for voluntary contributions of $1.00 from each member.

Doerfer's Reappointment

There was really very little opposition for the full seven-year appointment by President Eisenhower of Commissioner John C. Doerfer to succeed himself on the Federal Communications Commission. By the time these lines appear in print, Doerfer's confirmation by the Senate will probably be an accomplished fact.

Edward Lamb, wealthy Toledo, O., businessman and broadcaster, appeared before the Senate Interstate Commerce Committee and complained that Doerfer was biased and should not be confirmed. He also accused Doerfer of discriminating against him (Lamb) because he was a Democrat.

Doerfer told the senators on the committee that Lamb's broadcasting license had been held up for renewal because the FBI had supplied some "derogatory" information. Such information, coming with other complaints, Doerfer said, was the basis for the FCC procedure, which was simply designed to insure proper caution and checking in renewing broadcasting licenses generally. Doerfer denied categorically that he had persecuted Lamb or discriminated against him in any way.

While Commissioner Doerfer was questioned pretty sharply by Democratic senators, his nomination to the commission — on which he has been serving for a year—seemed assured with approval by the committee. Senate confirmation generally follows such committee action as a matter of course. The Democratic senators indicated that they would join in supporting the nomination after Doerfer told them he would favor a motion within the FCC to have Lamb presented with the basis of the Communist charges against him before public hearings were held on Lamb's license renewal.

Co-op Area Competition

It may happen that a cooperative loses its protection from area competition in the utility business through its very exemption from regulation as a conventional public utility. Cooperatives generally have resisted efforts to place them under the same kind of regulation to which commercial public utility companies are subject. Such is the status of cooperatives in the state of Montana where the Montana Supreme Court has recently thrown out a suit by a cooperative to restrain a commercial utility company from coming into its service area and competing with it.

The name of the Montana cooperative is the Sheridan County Electric Co-op, Inc. Although it is engaged in electrical operations only, the same principles would apparently apply to cooperative telephone operations in that state.

The Sheridan County co-op complained against the Montana-Dakota Utilities Co. It said in its suit for an injunction that the cooperative had been supplying electrical energy to certain rural areas in eastern Montana. Since the discovery of oil and gas in these areas, the commercial utility company has entered and built power lines for electric distribution. The co-op claimed that it was adequately supplying electric energy and that it had "an implied exclusive franchise right therein sanctioned and authorized by the laws of the state of Montana." It accused the utility company of engaging in unlawful competition, resulting in injury to the cooperative's business.

The electric utility company simply replied that the cooperative had failed to state a case because it was not entitled to any exclusive right to serve electricity in the area in question.

The Montana Supreme Court reviewed the Rural Electric Cooperative Act under which the co-op was organized. This gave the co-op the power to engage in rendering utility service "to its members, to governmental agencies and political subdivisions, and to other persons not in excess of 10 per cent of the number of its members."

The court's opinion, by Justice Freebourn, went on to state: "Had our lawmakers intended that cooperatives should have the exclusive right to furnish electric energy in such rural areas, and thus prevent competition by other authorized electric public utility, they should have used clear and apt words to so declare. Certainly, no such far-reaching right can be left to implication or inference."

And so the Montana Supreme Court threw out the co-op's case. As a result, the commercial utility company is free to compete anywhere without regard for territorial restriction. The Montana Public Service Commission has no authority, of course, over either the rates or service standards or service areas of non-profit cooperatives. If the Montana commission had such jurisdiction, it might well have been possible for the cooperative to get protective relief before the commission. But the commission could not very well protect an agency which it has no power to regulate, or grant operating certificates to, or otherwise supervise competition from a regulated utility company.

Elsewhere than Montana, the regulatory commissions have jurisdiction and authority over rates and services of such non-profit cooperatives in less than a dozen states. This raises a substantial question of protection of cooperatives from competitive operations if the theory of the Montana decision were to be broadly applied.

Lobby Law Full of Holes

The U. S. Supreme Court decision on June 7, upholding the federal law regulating lobbying, does not turn out to be as broad a decision on this subject as the proponents of that law had hoped.

The 5-to-3 decision does not prevent lobbying, for the simple reason that the law passed by Congress does not attempt to prevent lobbying. The law simply sets up the majority for registering lobbyists and getting certain information from them about their activities. The Supreme Court majority says this is all right as long as the application of the law stays within certain limitations.

The limitations are these: (1) A lobbyist must be "professionally" engaged in lobbying—no simon-pure amateur falls under its regulation; (2) the definition of lobbying is restricted to direct contact with Congress with respect to attempts to influence the passage, defeat, or change of legislation. This automatically exempts what is probably the major amount of activity in Washington, D. C., by representatives of business, labor, farm groups, or other special interests.

According to the *Congressional Quarterly* about 226 organizations and about 2,300 individuals have registered as lobbyists since the law was enacted in 1946. Expenditures of more than 4 million dollars were reported in 1953, of which business organizations spent about 1.3 million dollars, farm organizations nearly $400,000, and labor organizations about $336,000. The balance was scattered between special groups, such as professional associations (doctors, lawyers, etc.), real estate, veterans, etc.

But this is merely peanuts compared with the amount of money and activity spent on lobbying at the grass-roots level. That is where lobbying is most effective today. Some experts think lobbying at the grass-roots level is actually a billion-dollar business. The American Medical Association, for example, carried its case against socialized medicine directly to the people through their own family doctor. There was little or no money wasted on direct contact with Congress. But such activ-

(Please turn to page 40)

REA Approves Five Million Dollars in New Telephone Loans

REA loans to improve and extend rural telephone service during the week of June 14-18, were exactly 5 million dollars, according to a recent U. S. Department of Agriculture announcement. The funds were approved for use by six borrowers in five states:

Alabama Telephone Co., Inc., Fayette, Ala., on June 14, $2,935,000. The prospective borrower now serves 4,828 subscribers over 491 miles of line in Fayette, Franklin, Green, Lamar, Marion, Pickens, Sumter and Winston counties.

The loan funds would be used to improve and expand the existing facilities in the present service area in western Alabama to serve a total of 8,357 subscribers.

About 1,319 miles of new line will be constructed, 112 miles of the existing line rebuilt and the major portion of the present line utilized in the renovated system.

The magneto central offices at Berry, Guin, Reform, Sulligent and Vernon as well as the common battery offices at Fayette, Haleyville and Winfield will be converted to dial operation: and the dial facilities at Aliceville, Carrollton, Double Springs, Gordo, Hackleburg and Hamilton improved and expanded.

New dial central offices will be installed at Boston and Panola. At Haleyville the central office building will also house commercial office facilities. Service without toll charge will be available between a few of the 16 exchange areas.

These improvements will make it possible for the Alabama company to serve an additional 3,529 rural families and establishments now without telephones.

The completed system will consist of 1,800 miles of line. H. W. Vaughn is president and W. J. Holloday is manager of the Alabama Telephone Co.

* * *

Washington County Rural Telephone Cooperative, Inc., New Pekin, Ind., on June 14, $310,000 to finance the improvement and extension of rural telephone service in Washington and Clark counties.

The applicant presently serves 215 subscribers over 33 miles of line. The REA loan will be used to convert the present system to dial operation and to provide facilities to serve 522 rural families now without service.

Dial central offices for the expanded system will be located at New Pekin, Borden and Bunker Hill. Commercial office and central office facilities in New Pekin will be housed in the same building.

The completed system will consist of 144 miles of line. Virgil Holsapple is president and J. B. Miller is manager of the Washington County Rural Telephone Cooperative.

* * *

The Goldenbelt Telephone Association, Inc., LaCrosse, Kan., $515,000 on June 14, to improve and extend rural telephone service in Rush, Barton, Pawnee, Edwards and Ness counties.

The applicant, recently organized, proposes to construct a modern telephone system in this area to serve 982 subscribers.

The association plans to acquire the telephone properties of the Alexander Telephone Co., the Farmers Telephone Co. at Rozel; and access rights to the Albert Telephone Co., the Pivonka Farmers Telephone Co. at Timken, the Rush Center Telephone Co., and the Farmers Telephone Co. at Nekoma. These companies are now serving 764 subscribers over 478 miles of line.

The loan funds will be used primarily to rehabilitate and expand the acquired facilities.

About 477 miles of the existing line will be rebuilt, 21 miles of new line added and new dial central office facilities constructed at Albert, Alexander, Nekoma, Rozel, Rush Center and Timken.

These changes will make it possible for the Goldenbelt company to offer improved service to the existing subscribers and initial service to 218 rural families and establishments in the community now without telephones.

The finished system will consist of 499 miles of line. William Schroter is president of The Goldenbelt Telephone Association.

* * *

The Lewis (Kan.) Telephone Exchange, $193,000 on June 14, to finance the improvement and extension of rural telephone service in Edwards County.

The borrower plans to construct a modern system to serve 400 subscribers in its operating area. It will acquire the Edwards County Mutual Telephone Co. at Lewis, serving 332 subscribers, convert the system to dial operation and provide facilities to serve 68 rural families now without telephones. About 60 miles of the existing line will be rebuilt and 94 miles of new line added.

The Lewis magneto central office will be replaced with dial facilities, and a new rural dial central office constructed between Fellsburg and Centerview. Subscribers will be able to call back and forth between the two exchange areas without toll charge.

The finished system will consist of 170 miles of line. John S. Newlin is president of The Lewis Telephone Exchange, a cooperative organization.

* * *

Southeastern Indiana Rural Telephone Cooperative, Inc., Osgood, Ind., $700,000 on June 16, to finance the improvement and extension of rural telephone service in Dearborn, Jefferson, Jennings, Ripley and Switzerland counties.

The borrower is planning a modern telephone system to serve 1,400 subscribers in three non-contiguous areas. With its own funds, the new cooperative proposes to acquire the Cross Plains Telephone Co., the San Jacinto Telephone Cooperative, and 90 miles of subscriber-owned facilities. These telephone properties now are serving about 250 subscribers.

With the REA loan, the borrower will build 335 miles of new line, and rebuild 215 miles of the existing line. New dial central office facilities will be installed at Cross Plains, Dupont, Weston and near the town of Moores Hill.

These changes will make it possible for the borrower to offer improved service to the existing subscribers and initial service to 1,150 rural families in the vicinity who are now without telephones.

The completed system will consist of 500 miles. Harold E. Jones is president and F. R. Rudolph is coordinator of the Southeastern Indiana Rural Telephone Cooperative.

(Please turn to page 39)

Glossary of Telephone Words and Terms

AUTHOR'S NOTE: This glossary comprises a list of words and terms which telephone company personnel encounter in their everyday work. Some of these terms may be completely unfamiliar to the new employe while other terms, seemingly familiar, will be found to have a special meaning peculiar to the telephone business. The definitions herein, while not always rigidly scientific, are as exact as practicable, considering the desirability of keeping them both short and simple. Slang terms were avoided where there was an alternate preferred expression. It is hoped that this glossary will be helpful to all telephone personnel, but more especially to those who are relatively new in the business.

Compiled by EMERSON C. SMITH

A

Absorption Loss. The loss of power in a transmission circuit which results from coupling to a neighboring circuit.

A.C. Alternating current.

Account. Numerical code for classifying revenues or expenses or material transactions. Follows a system set up by the Federal Communications Commission (FCC).

Account Clearing. Temporary account into which expense is collected and later divided and charged against direct work accounts to determine the true cost of an operation.

Accounting. Procedure of recording expense, revenue and material activities, that is, keeping the company's books. Also the work of compiling statistics of any company activity.

Acoustics. (1) The science of sound. (2) The acoustical properties of an enclosed space.

Addendum. Usual meaning but, generally, a subsection added to a practice or other instruction.

Alarm. Device, such as a lamp, bell, horn or buzzer, or combination of these elements, arranged to call attention to some unusual condition.

Alarm, Battery. Signal calling attention to an abnormal power supply condition.

Alarm, Contactor. Signal calling attention to lowered pressure in a cable gas pressure system.

Alarm, Office. Signal calling attention to a total or partial failure or other abnormal condition in an office.

All-Relay Dial System. Method of completing telephone calls through the use of relays only.

AMP. Ampere.

Ampere. Unit of electric current or rate of flow of electricity. One volt impressed across a resistance of one ohm causes a current of one ampere to flow. One coulomb per second.

Amplifier. Device, usually electrical, which receives energy at a low level and sends energy out, identical or nearly so in form, at a high level.

Amplifier, Monitoring. Device which, when connected across a circuit, absorbs a negligible amount of energy, but reproduces that energy so it can be heard in a receiver or measured.

Amplitude. Commonly used in a general sense to indicate the size or magnitude of a wave or a current. (See RMS and Peak Amplitude.)

Amplitude Modulation. Process by which a continuous wave is varied in amplitude by a signaling or intelligence wave in such a manner that the envelope of the former bears a definite (usually linear) relation to the latter.

Ampoule, Carbon Monoxide Detector. Thin glass vial which, when broken, releases a liquid which changes color in the presence of carbon monoxide.

Anchor. Fastening arranged to prevent movement. For example, a guy wire is fastened to an anchor in the earth.

Anchor, Expanding. Earth fastening device with expanding blades. It is driven into the earth or buried in a dug slot and the blades then expanded by pulling, twisting or driving.

Anchor, Log. Anchor in the ground for guying a pole made of a log, split log, or two split logs crossed, to which a rod ("Guy Rod") is fastened.

Anchor, Screw-In. Anchor in the ground made of a spiral or screw shaped plate fastened tightly to a guy rod. The whole assembly is twisted or screwed into the ground by turning the guy rod.

Anode. (1) Positive pole, or conductor, or element. Electrons (charges of negative electricity) flow toward a positive pole, hence current flow is toward the anode; (2) loosely, a plate in a vacuum tube.

Anode, Magnesium. Bar of magnesium to be buried in the earth and connected to an underground cable. Forms a battery and keeps the sheath potential positive.

Antenna. Elevated conductor for sending or receiving radio waves.

Anti-Sidetone. Arrangement of telephone set circuit ele-

EMERSON C. SMITH has had long experience in the engineering and plant phases of the telephone and radio communication field.

Following graduation at Ohio Northern University with a B.S. degree in Electrical Engineering in 1928, he went with the Ohio Bell Telephone Co. He remained with that company for 17 years, during which he served as transmission and outside plant design engineer.

During World War II, for 27 months, Mr. Smith was loaned to Harvard University as a member of the faculty, where he was active in teaching and research and production engineering on radar counter-measures equipment.

He returned to Ohio Bell for a little more than three years, after which he became associated with the Hawaiian Telephone Co. of Honolulu. During six years with this company, he served as transmission and protection engineer, staff engineer and chief engineer.

He resigned from the Hawaiian company on Mar. 1, and is considering the establishment of a communications consulting engineering service in the United States.

ments so that only a small amount of the power generated in a transmitter reaches the associated receiver.

Apparatus. Electric equipment units either separately or collectively.

Apparatus, Station. Circuit elements installed in a subscriber's premises required to give him service.

Applique. Circuit element connected upon a basic circuit without changing the characteristics of that circuit.

Arc. Flow of electric current in a flame-like stream of incandescent gas particles.

Area. Usual meaning of a territory with limited boundaries.

Area, Accounting. Geographical location with defined boundaries for which separate bookkeeping records are maintained and for which an identifying number is assigned.

Area, Base Rate. Inner portion of the exchange area, in which all types of service are given without mileage charges.

Area, Central Office. Territory which receives telephone service from a central office.

Area, Exchange. Territory set up for administrative reasons for telephone service covered by a single rate basis. Usually a single city or large division or town or village.

Area, Light Loading. Territory in which the weather history is such that one need never expect sleet or ice, or wind force in excess of 8 pounds per square foot.

Area, Maintenance. Defined territory set up for repair and replacement work for administrative purposes.

Area, Operating. Major separation of most of the telephone company's work into a large geographical unit. An area functions as a complete telephone company up to the executive level.

Area, Testing. Defined territory assigned to one force for trouble locations and routine maintenance tests.

Arrester. Device which diverts high and dangerous voltage away from protected equipment to ground which usually restores itself to normal when no longer needed. Commonly called a "Protector." Inaccurately called a "lightning arrester."

Arm. See **"Arm, Cross."**

Arm, Buck. See **"Buckarm."**

Arm, Cross. Horizontal member, usually of wood, attached to a pole or other vertical member for the support of line or cables.

Arm, Extension. Cross-arm fastened vertically to the top of a pole for greater height.

Arm, Extension, Cable. Short arm holding one cable designed to bring a cable in line or to throw it out of line to clear an obstruction.

Arm, Guard. (1) Cross-arm placed over a cable in line with the cable to prevent damage to the cable; (2) cross-arm placed over wires to prevent foreign wires from falling into them.

Armor. Refers to cable construction. A layer or more of extra strength material such as steel wire or tape to reinforce the usual lead wall.

Assigner. One who specifies interconnections of plant from records held by him.

Assigning. The work done by an assigner.

ATB. All trunks busy. (See also **LTB**)

Atmosphere, Explosive. Refers to a condition where the air is mixed with dust, metal particles or inflammable gas in such a proportion that it may ignite and explode.

Atmospherics. Unwanted, extraneous, disturbing currents induced in wire-line circuits, which result from dust, lightning, and snow storms, are sometimes referred to as atmospherics. The term is, however, more properly used to indicate natural disturbances encountered in radio transmission.

Attachments. All the plant elements which may be fastened to a supporting structure.

Attachments, Foreign. Attachments to structures of one company by any other company.

Attachments, Tree. Items of telephone plant fastened to a tree.

Attenuating. The decreasing of electrical current, voltage or power in a communication channel. Particularly refers to voice, radio or carrier frequencies.

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Reprints of the completed "Glossary of Telephone Terms" will be available following its publication in TELEPHONY, *provided sufficient orders are received to justify reprinting.* Companies desiring reprints for their employes are asked to inform TELEPHONY the quantity they will need as early as possible.

Attenuation. Attenuation of a wave is the decrease in amplitude which accompanies propagation or passage through equipment, lines, or space, as in radio. (See db)

Attenuator. Electrical or acoustic device for reducing the amount of an energy train without introducing distortion.

Audio (Audio Frequencies). Frequencies which can be heard by the ear directly. (32-16,000 cycles per second.)

Automatic Message Accounting. System whereby the subscriber's dial pulses punch a tape which is then timed by the length of the call. From this punched tape, automatic equipment computes the message charges and prints the bill.

Automatic Toll Ticketing. System whereby IBM cards are automatically punched under control of the subscriber's dial pulses and a timer. These cards then control a printer which prints the toll tickets.

Automatic Volume Control (AVC). Self-acting compensating device which maintains the output of a transmission system constant within narrow limits in the face of wide variations in the attenuation in that system.

Autotransformer. Voltage, current or impedance transforming device in which parts of one winding are common to both primary and secondary circuits.

Auxiliary. That which aids and is additional to.

B

Babble. Interference consisting of the adding together of cross-talk from several sources, the result being unintelligible.

Balance, Active. In telephone repeater operation, the summation of all the return currents at the point of test measured at a network balanced against the impedance of the circuit.

Balcony. Platform at a cable terminal arranged with a handrail.

Balcony, Distributing Frame. Elevated platform with a guard-rail fastened to a distributing frame to permit working on the upper part of the frame.

Band. Gamut or range of frequency spectrum between two defined limits.

Bandage (Cable Splicing). Rubber ribbon about 4 inches wide for temporarily protecting a splice from moisture.

Bandpass Filter. Filter which allows free passage to frequencies within its designed range and which effectively bars passage to all outside that range.

Band-Stop Filter. Filter having characteristics inverse to those of bandpass, barring frequencies within a defined band and offering low attenuation to those outside.

Bandwidth. Range within the limits of a band. The width of a bandpass filter is generally taken as the limits between which its attenuation is not more than 3.0 decibels greater than its average attenuation throughout its pass band.

Bank. Assembly of fixed contacts formed into a single rigid unit. Wires are soldered to one side and moving contacts ("wipers") move over the other.

Bar. Basically a rigid steel rod used for prying or lifting like the common crowbar. Specific bars are listed below.

Bar, Digging. Steel bar, about 8 feet long, one end pointed, the other chisel-ended for loosening dirt and paving.

Bar, Manhole. Correct term for manhole hook. See **"Hook."**

Bar, Pinch. Heavy bar, about 4 feet long, with a curved chisel end for moving heavy objects by prying.

Bar, Tamping. Steel bar, about 8 feet long, with a square end for packing loose earth about a pole.

Battery. Properly used, a group of electric cells connected together. The cell is not a battery; it is a unit of the battery. In common usage, a single cell or any other electrochemical source of direct current is called a battery, as is the direct current itself.

Battery, "A." See **"Battery, Filament."**

Battery, "B." See **"Battery, Plate."**

Battery, "C." See **"Battery, Grid."**

Battery, Common. System of current supply where all direct current energy for a unit of a telephone system is taken from one source in a central office.

Battery, Filament. Source of energy which heats the filament of a vacuum tube. ("A" Battery)

Battery, Floated. Storage battery kept in a state of full charge across the leads of a generator. The generator carries the load but the battery absorbs any peak loads.

Battery, Grid. Source of energy which supplies a voltage for biasing the grid of a vacuum tube. ("C" Battery)

Battery, Local. Battery made of single dry cells located at the subscriber's station. Distinguished from common battery.

Battery, PBX. Source of energy for the operation of a private branch exchange.

Battery, Plate. Source of energy which causes current to flow in the plate circuit of a vacuum tube. ("B" Battery)

Battery, Quiet. Term sometimes found on drawings. See **"Battery, Talking"**; same meaning.

Battery, Signaling. Source of energy used to operate lamps and alarms for calling attention, to show the progress of a call, or to operate stepping magnets.

Battery, Talking. Source of energy of special design or with added filters which is sufficiently quiet and free from interference that it may be used for speech transmission. ("Quiet Battery")

Battery, Testing. High voltage, low current source of energy used at testboards and test desks for the operation of wheatstone bridges and voltmeters.

Baud. Used to define the operating speed of a printing telegraph system. (The total number of mark and space—on and off—code elements per second.) A teleprinter, running at such a speed that the maximum line frequency is 22.5 cps, is said to be operating at 45 bauds.

Bay. Row of racks on which apparatus, in the form of panels or shelves, is mounted.

Beating-In. (1) Splicing—hammering down the end of a lead sleeve so it fits the cable sheath; (2) transmission —connecting two oscillators together and adjusting one until no throbbing is heard in a connected receiver. The oscillators are then at the same frequency.

Bell. Device in which a vibrating member (clapper) strikes an element which gives out a tone which may be musical.

Belt, Body. Heavy belt passed around the waist, equipped with "D" rings for fastening the safety belt. Has loops or keepers for tools.

Belt, Safety. Heavy, adjustable belt passed around a pole and snapped to the "D" rings of the safety belt.

Belt, Tool. Leather strap worn about the waist with loops and pockets for holding hand tools.

Bender, Cable. Tool for putting curves or bends in cables when placing them in vaults or manholes or when racking.

Bias. (1) Telegraph signal distortion, such that it could have been caused by improper "biasing current"; (2) system of relay operation where a constant ("biasing") current tends to hold a relay in one position while the opposing intermittent ("operating") current of twice the value works against it; (3) electronic. A direct-current potential applied to the control grid of a vacuum tube.

Bifilar. Transformers, inductors, and the like are said to be bifilar wound when, to achieve a desired balance (similarity between windings), two conductors are wound simultaneously, side by side.

Billing. Process of collecting costs, adding expense items and preparing a statement for an amount to be paid.

Blanket, Rubber. Square of synthetic rubber used for temporarily protecting open splices.

Bleeding. Appearance of drops of wood preservative, particularly creosote, on the surface of a pole.

Block, Protector. Rectangular piece of carbon, bakelite with a metal insert, or porcelain with a carbon insert which, in combination with each other, make one element of a protector. They form a gap which will break down and provide a path to ground for voltages over 350 volts.

Block, Distributing. Set of punchings set in hard rubber or other insulating material, all mounted on a piece of wood. This assembly is rigidly fastened as to a frame and usually wired permanently on one side, permitting wires to be connected and changed on the other.

Block, Terminal. See **"Block, Distributing."**

Block, Wooden. Piece of wood simulating carbon blocks used in lightning arresters to keep the springs from grounding when protection is not required.

"Blow" (Fuse). When a fuse operates to open a circuit, it is said to "blow."

Blower. A motor-driven air pump for ventilating manholes.

Board. See **"Switchboard"** or **"Testboard."**

Board, Transposition. Tool designed to pull six open wires at a time and arranged with swivels so that pairs of wires may be interchanged at transposition points.

Board, Tag. See **"Strips."**

Bonding. Maintaining electrical continuity from one element to another. Usually the continuity is immediately or eventually to earth.

Borer, Increment. Tool for taking wood samples from a pole to determine depth of creosote treatment or extent of rot.

Bowing. Deflection sideways of a cable from its straight path, due to excess length in a section or span.

Box, Battery. Case holding dry cells for subscriber's local battery set.

Box, Cable. Usually of wood, in which cable pairs are terminated.

Box, Switch. Portable wooden case equipped with relays and switches for maintaining continuity in open wires while cutting transpositions.

Box, Terminal. Housing where cable pairs are brought out to terminations for connection.

Boxes, Test. Wooden cases holding jacks wired to a central test position. Usually mounted on distributing frames. Otherwise, the usual meaning of wooden cases holding test equipment of any sort.

Brace, Cross-arm. Steel strap mounted diagonally from pole to cross-arm to hold the cross-arm in position.

Brace, Pole. Pole with one end secured in the ground and the upper end fastened to a line pole to support it.

Brackets, Pole. Wedge shaped pieces of wood, often locust, designed to be nailed to a pole and made to hold an insulator on which a wire may be tied.

Break. (1) Referring to cable or open wire lines; an interruption to the physical continuity of the conductors, sheath or messenger or any combination of these; (2) in telegraphy: to interrupt a sender.

Break-Down. Failure of insulation for any reason. Defective insulation may be detected by applying an excessive voltage and observing when and where failure occurs when used; this is called "breaking down."

Breaker, Circuit. Device which interrupts the flow of current in a continuous circuit when there is a pre-determined deviation of current, voltage or impedance from a standard value.

Break, Per Cent. In pulse testing, the period of time the circuit stands open compared to the total time of the test signal, expressed as a percentage.

Bridge. Super-position of one circuit on another without interrupting the continuity of the first.

Bridge, Capacity. Instrument using a modification of the Wheatstone arrangement measuring electric charge capabilities in unit values of farads, microfarads or micro-microfarads.

Bridge, Wheatstone. Assembly of resistance and a current detecting device used for measuring resistance in ohms.

Bridged Tap. Any portion of the cable pair connected to a circuit which is not a part of the useful path of the circuit.

Bridging. Act of placing a "Bridge." (See **"Bridge"**)

Bridling. Insulated twisted pair wire used on a pole or in a cable terminal to connect wires together or to connect line wires to cable pairs.

Brush, Carding. Brush of short steel wires on a wood base, used for cleaning cable sheaths.

Brush, Terminal. Brush with long bristles for cleaning punchings and fuses in a terminal box.

Buckarm. Cross-arm set parallel to the direction of the pole line and at a right angle to the regular arms.

Bunching. Grouping pairs together and tying them for identification and testing.

Butt. The end of a pole set in the earth. The portion from the ground line down is usually considered the butt.

Buzzer. Vibrating reed actuated by self-interrupted direct current or by alternating current which gives an audible signal.

By-Pass. (1) Device which shunts out or away from a main circuit a selected current, as direct from alternating, or a selected frequency or an abnormal impulse; (2) in gas pressure, a tube permitting gas to flow freely around a plug or structure in a cable. It may, or may not, have a shut-off valve.

C

Cabinet, Equipment. A case, of wood or metal, designed to house relays and other apparatus, installed on a customer's premises.

Cabinet, Key. A case, usually of wood, installed on a customer's premises, arranged to permit different lines to the central office to be connected to various telephone stations. It has signals to indicate originating calls and busy lines.

Cabinet, Test. Box arranged for fixed mounting containing apparatus for trouble location and routine maintenance.

Cable. Assembly of conductors in a protective covering sheath arranged so the conductors can be used singly or in combination.

Cable, Aerial. Cable suspended on poles or other overhead structure.

Cable, Branch. Cable which leaves a main cable to reach some secondary point not at the main cable terminals.

Cable, Building-Out. Cable in short sections, usually made with high capacity, bridged across another cable to increase its apparent length as far as capacity is concerned.

Cable, Buried. Cable installed under the surface of the ground in such a manner that the earth must be disturbed to remove it.

Cable, Coaxial. (1) Cable consisting of a single cylindrical conductor suspended in the center of the other tubular conductor. The insulation may be air, nitrogen or polystyrene; (2) several coaxial elements under a single sheath.

Cable, Combination. Cable in which conductors are grouped in both quads and pairs.

Cable, Corrosion Proof. Cable with a special protective cover over the sheath to reduce damage from electrolysis.

Cable, Distribution. Branch off a feeder cable serving a small area or a building.

Cable Entrance. Cable which connects to an open wire line and brings it into an office.

Cable, Exchange. Cable, all or most of which is used directly for subscriber's connections. It is usually non-quadded and assigned to exchange testing forces for maintenance.

Cable, Feeder. Principal cable from a central office serving a large area.

Cable, Intermediate. Section of cable inserted in an open wire line.

Cable, Jute Protected. Cable having the sheath covered by a wrapping of tarred hemp or other fiber for protection from moisture and bruising.

Cable, Lashed. Cable fastened to its supporting strand by a continuous spiral steel wire instead of by rings.

Cable, Lateral. (1) A branch off a main or feeder cable; (2) underground branch from a main or feeder cable to the point where it connects to an aerial distribution.

Cable, Loading. Insertion at regular intervals of coils of wire on a magnetic core ("loading coils") in cable circuits to reduce the transmission loss.

Cable, Paired. Cable in which the single conductors are twisted together in groups of two or "Pairs."

Cable, Protective. Small gauge (24) quadded cable used in toll cables to serve the purpose of fuses. Usually at building entrances.

Cable, Quadded. Cable in which most of the conductors are in groups of four or "Quads," formed by twisting together two pairs.

Cable Service. Small cable to serve only one subscriber. Usually "lead sheathed" and in pipe conduit.

Cable, Stub. Short branch off a principal cable. The end is often sealed until it is used at a later date. Pairs in the stub are referred to as "Stubbed Out" pairs.

Cable, Submarine. Cable with special protective wrapping for continuous use under water.

Cable, Tape Armored. Cable with an overlapping wrapping of flat steel tapes over the sheath to prevent damage as from gnawing by rodents.

Cable, Tie. (1) Cable between two distributing frames or distributing points; (2) cable between two private branch exchanges; (3) cable between two towns, not in a main route; (4) cable connecting two other cables.

Cable, Tip. Cable usually having the conductors insulated with silk and cotton and used to bring outside cables into an office.

Cable, Toll. Cable in which all or most of the pairs are used for toll circuits.

Cable, Trunk. Cable used for inter-office connections. Pairs are usually loaded but not quadded.

Cable, Underground. Cable installed beneath the surface of the ground but in such a manner that it can be removed without disturbing the earth.

Calculagraph. Clock installed at switchboards, arranged to stamp elapsed times on tickets recording subscribers' calls.

Call-Indicator. Device for showing visually a number dialed from a dial office to a manual operator.

Cap, Lamp. Transparent or translucent cover over a signal light with special meanings assigned to the color or marking.

Cap, Reducing. Cast iron fitting for reducing the size of a steel pipe at the base of a pole to fit a "U" guard.

Capacitive Coupling. That type of interconnection between stages of an amplifier which employs a capacitor in the circuit between the plate of one tube and the grid of the succeeding one.

Capacitor. An element which stores electric charges; a condenser.

Capacity. (1) Characteristic of electrical dielectric of storing a charge of electricity under electrical pressure which can later be recovered; (2) term sometimes used when "Condenser" on "Capacitor" is meant.

Car, Cable. Board forming a seat suspended from two wheels to permit a workman to ride along a suspension strand.

Carbons. Piece of squared carbon, or several such pieces cemented with a mica separator, which forms one element of a protector.

Card, Circuit Layout. Printed form on which is entered a circuit name and number and a list of the circuit elements comprising the entire circuit together with operating information and limits for a toll circuit, channel, carrier system or private line.

Card, Trouble History. Card attached to a circuit layout card for recording the performance of a circuit or service.

Carrier. High-frequency current superimposed on a voice circuit, on which can be modulated additional voice or signaling channels.

Carrier Frequency. Frequency, the repetition rate per unit of time, of the wave which is modulated by the intelligence wave.

Carrier Leak. In suppressed carrier modulators, as used in suppressed carrier single-sideband systems, the balance is never perfect. The carrier frequency power

which remains as a result of such unbalance is often called carrier leak.

Carrier Line. Any transmission line used for multiple channel working by the carrier method.

Carrier Loading. Inductive lump loading in the cable section of a transmission line specifically designed for carrier working. Loading serves to minimize impedance mismatch between cable and open wire and to reduce the cable attenuation.

Carrier Repeater. An assemblage of equipment designed to raise carrier signal levels to such a value that they may traverse a succeeding line section at such amplitude as to preserve an adequate signal-to-noise ratio.

Carrier Signaling. Method by which necessary supervision, i.e., busy signals, ringing or dial signaling relays are operated by the transmission of a carrier frequency tone. The frequency of a carrier employed for carrier signaling may lie either inside the range assigned to the speech channel, may lie between channels, or a group of such tones for a number of signaling circuits may be put in a voice band or a half band assigned for the purpose.

Carrier Transfer Filters or Sets. Group of filters arranged as a carrier-frequency crossover or bridge between two transmission circuits.

Cart, Cable. Two-wheeled cart for carrying a splicer's tools and materials.

Cathode. Negatively charged pole, conductor or element from which current leaves. See **"Anode."**

CAX. Community Automatic Exchange. A small dial office serving a community.

CCS. Hundred call seconds. The unit of traffic load.

CCT. Abbreviation for "circuit." Sometimes improperly "CKT."

CD. See **"Drawing."**

CDF. Combination Distributing Frame. A frame which combines the functions of a main distributing frame and an intermediate distributing frame.

CDO. Community Dial Office. See **"Office."**

Cell, Dry. Source of electrical energy depending on the reaction of a chemical paste on carbon and metal or two metals for its supply. Will not normally spill liquids and cannot be recharged.

Center, Test. Location in a central office equipped with means of connecting to all lines and apparatus for locating trouble, doing routine maintenance work and measuring the performance of subscriber lines and stations.

Center, Toll. Operating office for completing toll calls, which handles all its own traffic and may handle all or some of other, "Tributary," offices.

Channel. Path for electrical communication free from outside interference. Not necessarily a pair of metallic conductors.

Channel, Radio. Band of frequencies sufficiently wide to permit radio communication.

Channel, Telegraph. Communication path between two points suitable for transmitting telegraph signals.

Channel, Telephone. Communication path between two points suitable for transmitting telephone communication.

Characteristic. Frequently used to indicate the frequency versus amplitude response chart of almost any piece of equipment or any part of a transmission circuit.

Characteristic Impedance. Characteristic impedance of any line is the impedance at a given frequency which would be measured if that line were uniform in all respects throughout its length and of infinite length.

Circuit. All or part of the path in which energy travels in an electrical connection. Abbreviated **"CCT."**

Circuit, Common Battery. See **"Battery, Common."** A circuit using a centralized source of electrical energy.

Circuit, Cord. System of connecting electrical operating equipment to flexible conductors called "cords" for connections and interconnections to jacks as at a switchboard position.

Circuit, Four Wire. Communication path using one channel for each direction of transmission. It may employ two conductors in each direction, hence, "four wire."

Circuit, Free Service. Telephone message circuit giving toll service for which no direct toll charge is collected.

Circuit, Grounded. (1) Circuit in which energy is carried one way over a metallic path and returned through the earth; (2) circuit connected to earth at one or more points.

Circuit, Message. Circuit used for completing toll telephone calls.

Circuit, Private Line. Communication path suitable for any selected type of communication assigned for private use. The user leases a **channel** for which the company assigns a **circuit.**

Circuit, Ring Down. Circuit on which the signaling is with manually applied ringing current, usually of 16, 20, 135 or 1,000 cycles.

Circuit, Straight-Forward. Circuit in which signaling is automatic and in one direction.

Circuit, Two-Wire. Metallic circuit using one wire for the "go" and a second for the "return." Not grounded.

Clamp. Usual meaning of a gripping device operated by screws or bolts to fasten two or more articles together.

Clamp, Drop Wire. Assembly of a copper shell and a brass wedge with a wire bail, used to fasten a drop wire to a drivehook or a span clamp.

Clamp, Grade. Clamp which fastens the cable to its suspension strand to prevent it from slipping.

Clamp, Ground. Clamp for fastening a conductor to an earth connection such as a rod buried in the earth or water pipe.

Clamp, Ground Rod. Clamping device to hold a ground wire to a rod driven into the earth.

Clamp, Guy. Tool used for making up ends of guys, strands and dead ends.

Clamp, Strand. Clamp for fastening two sets of stranded conductors together or one back upon itself.

Clamp, Suspension. Clamp for holding a suspension strand tightly to a pole.

Clear, To. To release, disconnect or disengage apparatus or a circuit from use and to restore it to its original condition.

Clearances. Usual meaning of separation with special application to the separation of telephone plant from power plant or hazardous structures.

Climbers, Lineman's. Shaped irons with straps for fastening to the legs, equipped with sharp spurs, for climbing poles.

Cloth, Wiping. Special reference to a cloth used by splicers in working molten lead into position when completing a splice.

Coaxial. See **"Cable."**

Code. System of signals with special meanings. A code may be arbitrary or systematic.

Code, Accounting. System of letters and numbers used in the field to subdivide regular accounts and to make possible studies not required by the formal accounting system.

Code, Color. System of colors applied to the wrapping of cable conductors to distinguish one from another.

Code, Ringing. System of spaced rings to call in different subscribers on the same line.

Code, Telegraph. List of impulse combinations corresponding to letters and figures used in telegraphic communication.

Code, Teletypewriter. System of five impulse combinations corresponding to letters, figures or other characters used in teletype communications.

Coil, Choke. Coil designed to have relatively large induction to prevent sudden changes in current flowing through its winding.

Coil, Exploring. Loop of wire, with or without a magnetic core, for locating currents by induction. Used with a current indicating device.

Coil, Heat. Overcurrent protection consisting of a heating coil in a toothed shell which is held to its pivot with a low melting point solder. Heat generated by current in excess of the rated amount softens the solder permitting the shell to rotate and open the circuit.

Coil, Heat, Dummy. Substitute for a heat coil which is not operated by excessive current. Used when protection is not desired.

(Please turn to page 42)

The PBX Service Adviser

By GILBERT R. BRACKETT, *Traffic Consultant*

With the establishment of plants in smaller communities by large industrial manufacturers and with the resultant commercialization of these areas, Independent companies probably will have to serve more and more PBX customers. Therefore, this article, telling of the importance of the work of *PBX Service Advisors* in training PBX operators to handle all types of calls, should be of interest to the larger Independents. In a previous article entitled "The Private Branch Exchange" (Apr. 10 issue), Mr. Brackett told why telephone companies should make special effort to serve PBX subscribers and train their operators.

THE WORK of a PBX service adviser has tremendous impact on the general over-all performance of a central office . . . dial, or manual or toll.

To place emphasis on the importance of PBX supervision I would like to repeat a truism of a previous article (TELEPHONY, Apr. 10, p. 17) . . . we must realize that 60 per cent of all local and long distance calls, in the exchanges of any commercial city of size, either originate or terminate at PBX switchboards. Further, dial service is being extended rapidly to handle all types of calls and as a result the telephone-using public will look upon the PBX attendant with more than passing interest. The long distance operator, the local operator, the information operator, the PBX operator . . . they are all one and the same to John Q. Public.

Therefore, to develop good service attitudes in the minds of the PBX attendants is of major importance, if they are to pass on to their inquirers information that is for the best interest of the telephone company that serves them.

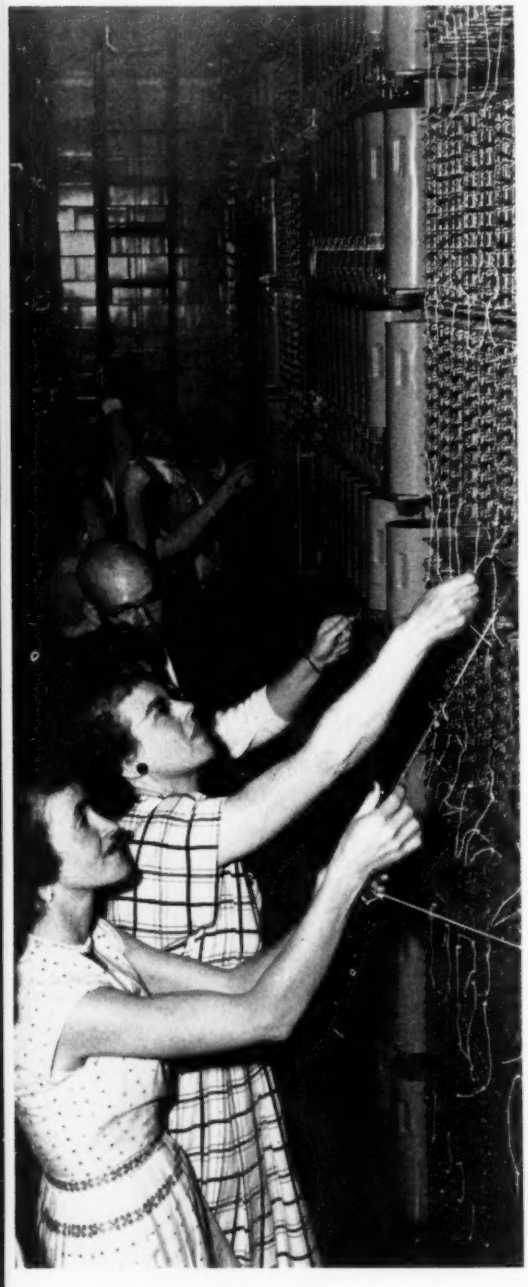
The service adviser can go far toward improving conditions which might cause service deterioration in either a dial, manual or toll central office and which, if left to grow, might bring public condemnation and a resulting break in public relations.

The attitude of customer management toward the telephone company's effort to develop PBX service is influenced greatly by the manner in which a service adviser interprets and presents what the telephone company has to offer.

Through good leadership people can be directed to work cooperatively and

(Please turn to page 28)

"Pull the picks!" The switchroom hummed with excitement as 2600 lines of Strowger Automatic equipment with 5500 connector terminals were cut into service June 12th. De Kalb is the main toll center for the De Kalb-Ogle Telephone Company's 17 exchanges.



De Kalb, Ill. goes Strowger Automatic

Replacement of old manual equipment with modern Strowger Automatic and installation of the latest type toll board give De Kalb, Illinois, the fastest, finest service possible. What's more, De Kalb is ready for nationwide toll dialing!

"De Kalb's worries are over," was the confident verdict as [illegible] A. Joslyn, president of De Kalb-Ogle (6th from left), and C. [illegible] Cadwell, president of Automatic Electric (3rd from left), not[illegible] the smooth operation of the new exchange.

month by month Strowger Automatic installations exceed all others

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems

Makers of Telephone, Signaling and Communication Apparatus • Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
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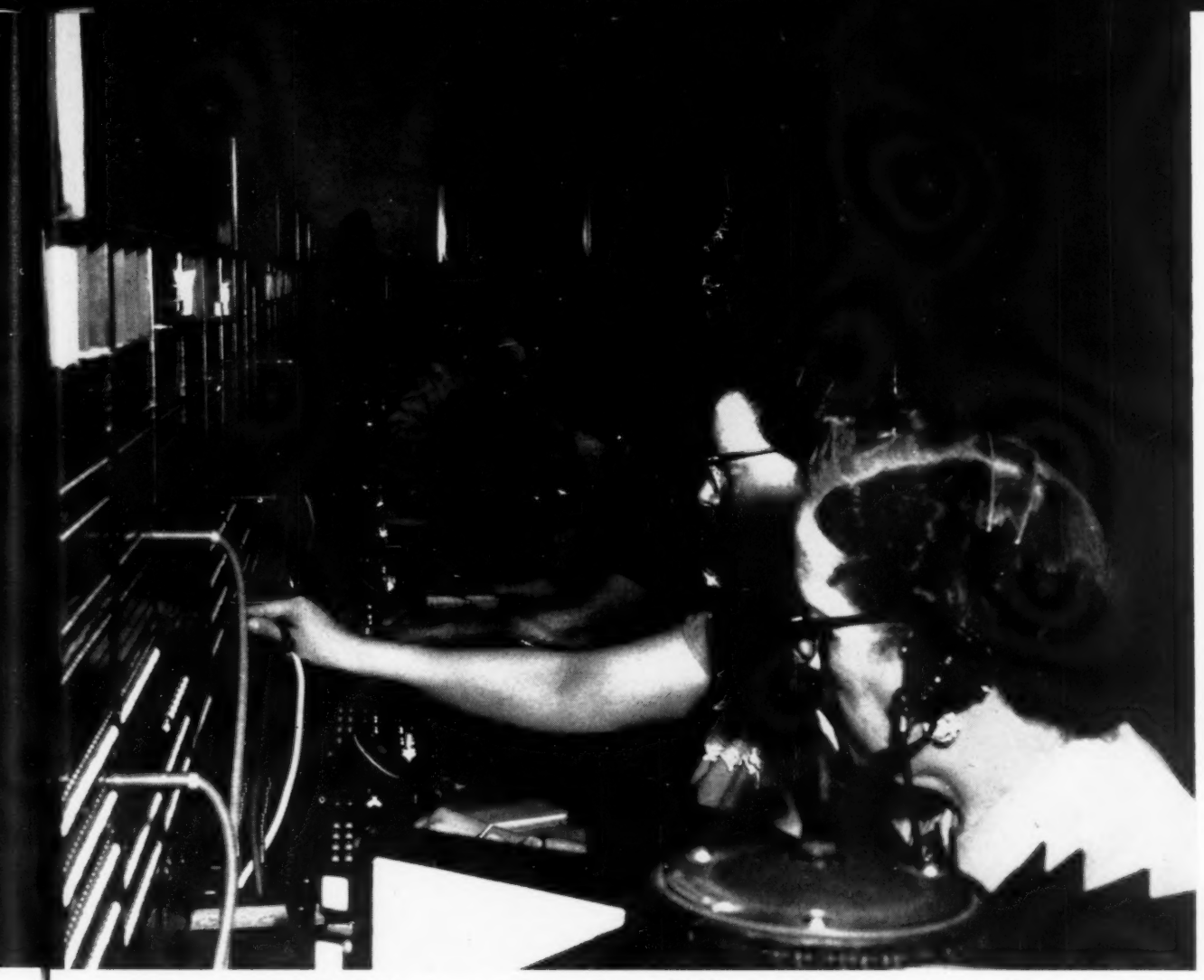
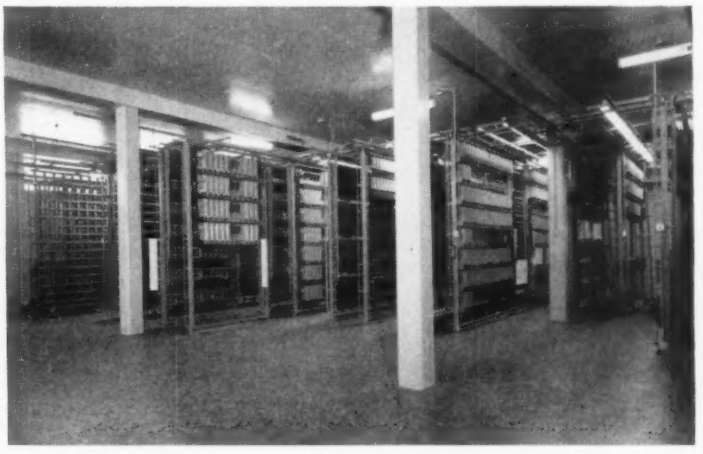


Star attraction at the De Kalb cutover was the new Type 31 Toll Board, which makes work fast and easy for these girls.

in with the nationwide operator toll dialing work is the new Type 31 Toll Board—all 16 tions of it! The board trunks to Chicago, ora, Elgin, Rockford, Belvidere, Geneva, and ling, and to all exchanges of the De Kalb-Ogle pany.



Easy conversion to nationwide toll dialing is one of the big advantages of De Kalb's new Strowger Automatic equipment, due to its "2-5" first selectors. Note, too, the large vacant floor area—De Kalb is prepared for any foreseeable growth. Intertoll dialing is provided for a network of unattended exchanges linking nine surrounding towns.

Smart and attractive in appearance, the new exchange building is a fine example of the most modern telephone exchange architecture.

efficiently toward a desired objective. Fortunately, cooperation is enjoyable to most people. A service adviser's success as a leader can be predicted by the way she goes about getting the cooperation that is so necessary for congenial working agreements.

Whether we are dealing with one person or a group, it is important that we know how to deal with people. Some service advisers are too impatient to treat people as they like to be treated. The experienced supervisor knows she will get just as much out of her job as she contracts for. She is fully aware that unselfish effort will bring great personal satisfaction and make her job more pleasant and much easier.

Complaints should be looked upon as assets and should never be resented. They give the service adviser an opportunity to show her wares, to demonstrate her ability to treat a situation and satisfy a customer.

Technically good service alone is not sufficient. The service adviser should seek to stimulate interest and enthusiasm in a plan to achieve a service that is at all times pleasing and courteous. The overtones that spell good service call for pleasantness, cheerfulness and sincerity from both the calling party and the extension users.

Most any PBX attendant will follow through, once she knows that improvement in her abilities comes from the help of her service adviser. Even the most modest can be taught that as she improves in performance she becomes more valuable to her management, and opportunities for her advancement in the business increase proportionately.

Once the customer management is impressed with the value of a pleasant, as well as an efficient service, he will enthusiastically follow any plan suggested toward a sound service improvement. However, the service adviser must tactfully and carefully avoid involving herself or the company in matters which are definitely of neither's concern.

Each visit to a PBX should be carefully planned, with customer needs as the measurement. A carefully thought out approach will stimulate customer service interest and most difficulties will be avoided. With tact and ingenuity, the service adviser should direct her efforts toward obtaining the greatest possible cooperation from those with whom she has to deal and encourage the customer's active interest and support.

A record of visits for each individual board, name of customer management and attendants, type and quantity of equipment, service irregularities found on previous visits and any other pertinent facts dealing with a particular board will help in furthering service improvements. Through such a record the service adviser will have at her finger tips information on conditions that might cause adverse comments or criticism of the service.

Sincere friendliness, without boldness, will make the customer management and the attendant glad it is "you" who will work with them.

The manner of approach to a problem should be governed by the personality of the person being dealt with. The service adviser who is a good listener and who shows genuine interest, will encourage freedom of speech. Attendants who are not encouraged to get rid of their unhappiness by talking will often expend the unexpressed emotion in the form of careless service.

A real faith in another's ability to work her way out of difficulty is necessary if the service adviser is to help an attendant carry on and be of worth to her employer and to herself. The service adviser will find, as she matures as a leader, such faith is invariably justified.

The service adviser will accomplish far more with the attendant through friendly suggestion than she ever will with criticism. The service adviser who gains the confidence of her attendants and then merits such trust through helpful advice and assistance, will find that she is not only a welcome visitor but her suggestions are generally followed.

To be a good service adviser calls for a certain amount of self-discipline. One of the hardest rules she'll be called upon to abide by is . . . "Don't pass moral judgments!" The service adviser is on the job for the sole purpose of helping, not for reforming.

This, of course, calls for strong sense of humility, patience, self-control and restraint. She must honestly be interested in her people and show it. If she is, at the end of the day she will probably discover . . . she has experienced as much relief from her tension and worries as have the attendants she has supervised.

A visual study of a PBX switchboard should disclose, to an alert service adviser, the cause of any service deterioration. By careful supervision it should not be difficult to detect a poor force condition, an inferior board balance, an indifferent arrangement of facilities, bad operating technique, a low estimate of good service standards on the part of the customer management and the attendant or when the attendant's ability to give good service

(Please turn to page 40)

Opens Consulting Service

Mr. Brackett has announced that he has established a PBX consulting service which will be available to Independent companies desiring to train personnel to become PBX service advisers.

Mr. Brackett is a veteran of 45 years in the Bell System, of which 22 years were in PBX supervisory service, guiding and directing the PBX service in the Des Moines, Iowa, district of Northwestern Bell Telephone Co.

For the two years prior to Mr. Brackett's retirement on Dec. 1, 1953, he was traffic results supervisor—PBX and TWX, supervising the engineering installation and operation of all PBX's, dial and manual, for Northwestern Bell in Iowa.

As PBX supervisor, Mr. Brackett has held meetings with PBX service advisers and district representatives, selling them on the importance of the PBX and TWX job. He also has worked closely with AT&T Co. PBX people.

Mr. Brackett has written and had published a complete set of notes for "PBX Service Adviser's Handbook." Also he has developed a complete set of "How to Operate" booklets for all types of manual and dial PBX switchboards.

In Northwestern Bell's general office in Omaha, Mr. Brackett has consulted with plant, commercial and traffic men on PBX and TWX problems. He has spent considerable time on public relations and is convinced that a most important doorway to good relations, and thus more business, is through the PBX switchboard.

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

A TEST SET of a simple but new design for use in locating trouble in cable, open wire or drop wire, has recently been placed on the market and should prove of interest to telephone men everywhere. This set consists of a vacuum tube amplifier and exploring coils that may be mounted on tree-trimmer handles and used to locate trouble in aerial lines without climbing poles.

We are informed by the manufacturer that they have located faults with resistance as high as 10,000 ohms in open wire lines. To locate these high resistance faults, a steady tone is first placed on the trouble line. Then, the exploring coils are placed between the two wires of the circuit and moved slowly back and forth.

If this test point happens to be between the trouble and the tone, the volume will be steady at all points between the two wires of the circuit. But when the trouble has been passed, the volume of the tone will diminish, as the exploring coil is moved from either wire, until a point is reached directly between the two where a dead spot will be found and the tone cannot be heard.

Another method of locating high resistance faults, especially grounds, is to place the exploring coil close to the wires of the circuit and move it back and forth at right angles to the wires.

If this point happens to be between the fault and the tone, a distinct break in the volume will be noted each time the coil crosses the wire. If the fault has been passed, there will not be any break in the tone.

• • •

The May issue of "Northern Lines," publication of the Northern Ohio Telephone Co. is designated "Employe Recognition Issue."

At a recent Employe Recognition party in Mansfield, O., W. C. Henry, company president, presented service awards to 295 employes in recognition of a composite total of 4,072 years of service.

In our opinion, affairs of this nature pay big dividends to any company. All Bell System employes are proud of the company for which they work. Employes of Independent companies also have just as many reasons to be proud of their company.

Perhaps we have been a little lax in some cases in pointing out the reasons why Independent telephone workers should be proud of their company and its objectives. It appears that the Northern Ohio Telephone Co. has a good start in the right direction.

• • •

We note with considerable interest that the Pacific Telephone & Telegraph Co. has women traffic engineers employed in the state of California. In speaking of these women, E. A. Fuller, general traffic engineer of southern California stated:

"I'm proud of our women engineers. We have four of them here and I wish we had more like them. They have been accepted very well by the men. We give them the same pay treatment and we make no distinction in giving jobs to them. They are very capable and versatile."

By classic definition, "It is the responsibility of the traffic engineer to see that the right amount of the right type of facilities are provided in the right place at the right time to give the right grade of service."

This sounds like a big order, but the women engineers in southern California agree that they enjoy this assignment more than any other work they have done.

On a trip to the Bell Laboratories recently, this writer enjoyed hearing two women engineers explain a new transposition system they had recently designed. These women certainly knew their business and from every indication were just as capable as men.

Certainly, there are many types of engineering that could be handled just as well by women as by men engineers. Perhaps in view of the present day general shortage of men engineers, more women should be trained in this phase of our communications work.

• • •

A new type safety goggle is provided with large shielded ventilating holes that draw off moist air from the top and center of the lens to prevent fogging. The soft vinyl frames of these goggles fit over prescription glasses. The goggles are available in either clear, or transparent green or opaque black. Replaceable, optically correct and shatter-proof lenses are available in heavy or light impact type in clear or green.

• • •

At the end of 1953, more than 81 per cent of all Bell System telephones were dial, and customers and operators are now dialing an increasing number of long distance calls. Customers in Englewood, N. J.; Birmingham, Mich., and East Pittsburgh, can now dial their own long distance calls direct to about 13 million telephones in 14 metropolitan areas from coast to coast.

• • •

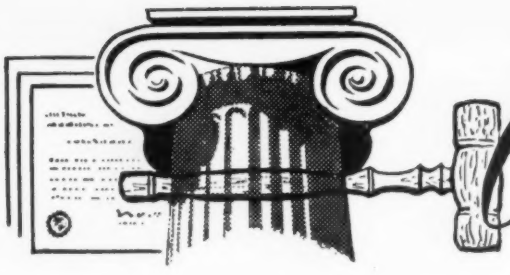
A new type of air filter is now available for use in both high and low velocity air conditioning systems. This 1-inch thick air filter is said to hold up to 800 grams of standardized fine air cleaner test dust between cleanings.

The manufacturer claims that the filter operates efficiently between 800 and 1200 cfm per 20-inch square panel. The Gabled-crimp design has been combined to the herringbone-crimp screen to produce efficiency with minimum thickness.

It is claimed that the unit loads progressively with minimum pressure loss, and may be cleaned easily.

• • •

It has been said that luck may help a man over a ditch, if he jumps well.



Courts and Commissions

Arkansas Commission Refuses Certificate Plea

The Arkansas Public Service Commission on June 16 refused the application of the Bethany-Converse Telephone Co., Rodessa, La., for authority to serve Mineral Springs and Ozan, Ark.—territory the company had been serving inadequately, the commission ruled. On June 17, the application of J. D. Garrett, Jr., for authority to serve Mineral Springs was approved. Mr. Garrett is the owner of the Walnut Hill Telephone Co., Lewisville.

In judging Mr. Garrett and his company's ability to serve, the commission stated. "The said Garrett proposes to install in Mineral Springs a dial system adequate and sufficient to render efficient telephone service to the public of Mineral Springs and the rural area adjacent thereto; (and) the rural area proposed to be served by the said Garrett from his Mineral Springs exchange has a common and economic interest with Mineral Springs, and the practical and logical method of serving that area is from the Mineral Springs exchange."

V V

N. C. Commission Re-Opens Southern Bell Rate Case

The North Carolina Utilities Commission on June 21-23, upon instructions of the North Carolina Supreme Court, re-opened a hearing on a rate request from Southern Bell Telephone & Telegraph Co.

The commission received a request from the company for an increase of $4,795,344 which would be in addition to the $1,648,056 granted by the commission in April, 1953, and which was appealed to the courts by the company on the grounds that it was insufficient.

The rate case began in December, 1952, when the company petitioned for a rate increase of $3,426,700 a year. When the commission issued its order in April of the following year, both the company and the North Carolina attorney general, representing communities opposed to the increase, appealed to the courts.

Those protesting the increase and represented by the state contended that no increase at all was needed, and the company appealed on the contention that the amount allowed was entirely inadequate.

Last January, the supreme court sent the case back to the commission for further consideration, with definite instructions as to how it should go about arriving at the amount of increase needed.

The case has considerable importance other than to Southern Bell inasmuch as similar appeals by the Carolina Telephone & Telegraph Co., Tarboro, and by the State of North Carolina are pending in another rate case.

In asking for an annual increase of $4,795,344 in rates during the hearing just ended, Southern Bell said that the amount is needed to give the company a 6.75 per cent return on its investment in North Carolina. It said that of the gross figure only $2,004,663 would be retained by the company, with "practically all" of the remaining $2,790,000 going to the state and federal governments in the form of gross receipts and income taxes.

The company's investment in North Carolina was based on a fair value of $92,808,462.

The company said that the 6.75 per cent rate of return sought is needed to compensate investors for the risk assumed and to maintain the company's credit and financial soundness. It said net income from the company's North Carolina operations for the year ending last Mar. 31 amounted to $4,132,544, for a return of only 4.59 per cent.

The company contended that its investment per telephone has increased steadily during the period since World War II, from $121.29 as of Sept. 30, 1946, to $218.08 as of Mar. 31, 1954, chiefly because of increases in the cost of labor, materials and supplies. It said that the rates now in effect were designed to provide a return on an investment of only $189.72 per telephone.

Upon conclusion of the presentation of Southern Bell's case, the commission recessed the hearing until Aug. 10 in order to give protestants time to submit evidence submitted by the company during the three days of the new hearing.

Financing Program Approved For West Coast Company

Oregon Public Utilities Commissioner Charles H. Heltzel recently authorized the West Coast Telephone Co., Everett, Wash., to sell 100,000 shares of its $25 par value cumulative preferred stock, $1.28 dividend series, at a price of not less than $25.10 per share to seven insurance companies.

Commissioner Heltzel also authorized the West Coast company to use the proceeds from the sale of the stock to retire short-term bank loans totaling $800,000, and to reimburse its treasury for construction expenses.

The West Coast company's 100,000 shares were sold to the following insurance firms:

	Shares
(1) New York Life Insurance Co.	36,000
(2) The Mutual Life Insurance Co. of New York	25,000
(3) The Mutual Benefit Life Insurance Co.	25,000
(4) State Farm Mutual Automobile Insurance Co.	8,000
(5) State Farm Life Insurance Co.	2,000
(6) The Lincoln National Life Insurance Co.	2,000
(7) The Western & Southern Life Insurance Co.	2,000

V V

Rate Raise, Service Improvement Ordered for Nebraska Companies

Increases of 50 cents on all classes of service were recently granted the Chase County Telephone Co., Champion, by the Nebraska Railway Commission, effective July 1. The company serves 132 subscribers at Champion, 83 of whom receive service over metallic lines; the remaining 49 are on grounded lines. All stations are company-owned.

The new rate for all classes of service is $2.25. This is on a net basis since the company does not employ a prompt payment discount plan. Reportedly, the increase was necessary because the company found it essential to engage a new switchboard operator and to increase traffic expense by $756 per year.

Annual operating revenue resulting from the order would be $4,675 and expenses $4,343. This would result in a net profit of $332 per year.

The commission also issued an order

to the Byron Telephone Co., to metallicize its rural lines and otherwise improve and rehabilitate its telephone plant and equipment in order that service may be improved.

The order resulted from complaints filed by subscribers to the effect that service was not dependable and that a commercial grade of service was not being provided.

V V

Texas Company Granted Interim Rate Raise

The San Marcos (Tex.) Telephone Co. and the San Marcos city commission have effected a settlement of the company's rate case.

The settlement provides an interim raise in rates for manual operation and an additional raise when the telephone exchange is converted to dial.

At present, it means a reduction in the rates the company has been charging since April. It raised its rates on Apr. 1 following a district court decision of Mar. 8, enjoining the city from enforcing the old rate schedules.

Settlement of the dispute came after Calvin Allen, newly elected member of the San Marcos Commission, was appointed to negotiate a settlement on behalf of the city. Under terms of the settlement, both sides will join in asking the court to dismiss the suit, ending further litigation.

The cut-over to dial telephones is expected to take place within two years, but H. Y. Price Jr., president of the San Marcos company, said he hopes to have dial service operating sooner than that.

The following is the schedule of interim rates:

	Old	*New*
One-party business	$6.50	$7.50
Two-party business	5.50	6.75
Four-party business	4.00	5.00
One-party residence	3.50	4.50
Two-party residence	—	3.75
Four-party residence	2.75	3.00

The dial rates, to be charged after the cut-over, are as follows:

One-party business	$10.00
Two-party business	8.00
Four-party business	6.00
One-party residence	5.25
Two-party residence	4.25
Four-party residence	3.50

V V

Rate Raise in Missouri

The Missouri Public Service Commission recently granted a rate increase to the Grant City Telephone Co. There was only one objection to the increase and it was withdrawn.

Two Nebraska Companies Granted Rate Increases

The Nebraska Railway Commission has authorized a general rate increase, effective July 1, for the Springview Exchange Telephone Co. (TELEPHONY, June 26, p. 31). The authorized rate schedule is as follows:

	Old	*New*
One-party business	$3.75	$4.50
One-party residence	2.50	3.00
Two-party residence	2.25	2.75
Rural	2.50	3.00
Service Stations	.80	1.00

Rates are net since the company does not use a prompt payment discount plan.

New rates would produce additional gross revenue of $1,029 per year. Annual operating revenue is estimated to be $7,967 and expenses $7,312 exclusive of taxes in the amount of $232. This would result in a 3.04 per cent return on an adjusted net book rate base of $13,906.

It was said that increased operating expenses plus substantial capital expenditures made it necessary for the company to seek additional revenue. The company also plans to continue its program of improving service by the installation of 2,500 feet of aerial cable this fall. It serves 210 telephones at Springview and surrounding rural areas.

The commission also authorized the Smithfield Mutual Telephone Co. to increase rates on all classes of service by $1.00 effective July 1.

The new rates are $3.00 for business service and $2.50 for residence and rural service. The company does not employ a prompt payment discount plan.

Annual revenue estimated under the new rates is $2,115 and expenses, including taxes, $1,928. This would result in a net profit of $187 per year.

The company serves 62 subscribers at Smithfield. It provides magneto service over grounded telephone lines.

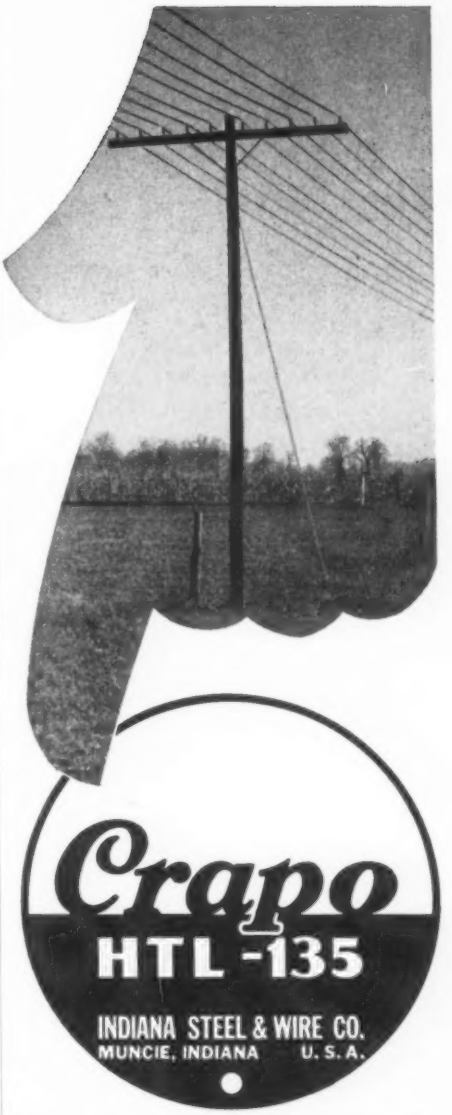
V V

Georgia Company Granted Dial Rate Schedule

The Georgia Public Service Commission recently authorized rates for the Bulloch County Rural Telephone Cooperative, Statesboro, to be charged when the company's conversion to dial and contemplated expansion plans are completed.

At the same time the commission, in a separate order, authorized the cooperative to secure an additional loan from the Rural Electrification Administration in the principal amount of

(Please turn to page 34)



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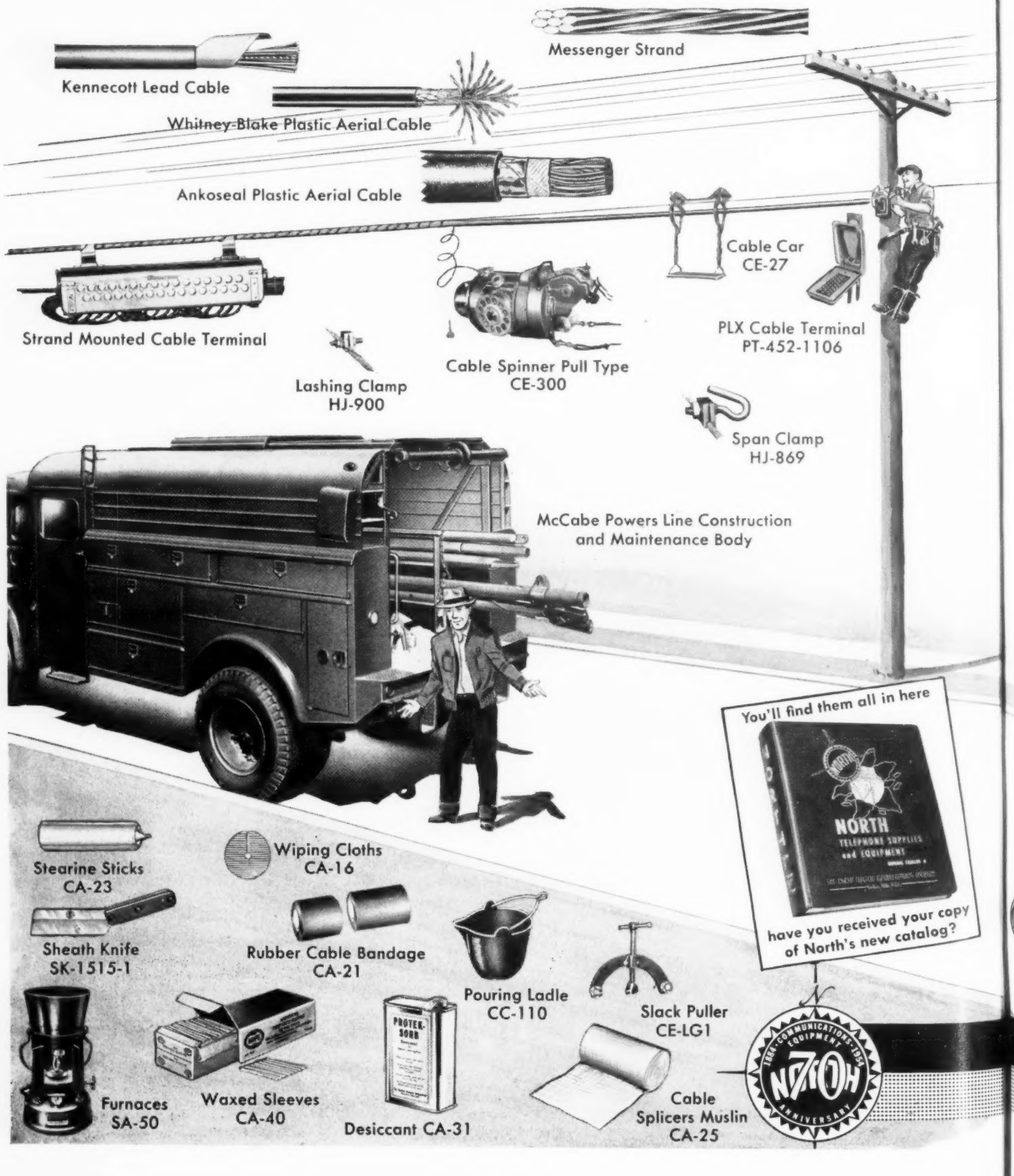

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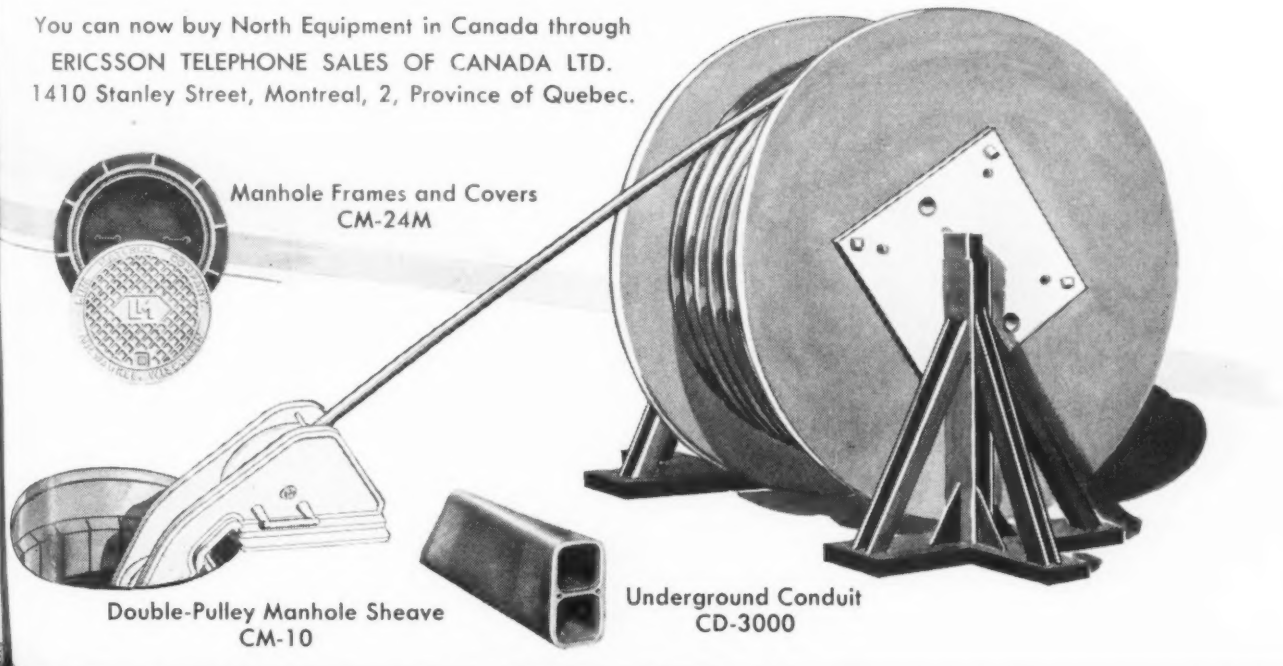

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$87,000. The loan increased the total amount of the REA loan authorized to $540,000.

The present rates, and those approved for the company when it has converted to dial, are given below:

	Present	*Dial*
One-party business	$6.00	$6.25
Two-party business	5.25	5.50
Four-party business	4.50	4.50
One-party residence	3.75	4.50
Two-party residence	3.25	4.00
Four-party residence	2.75	3.50
Rural residence switchers	3.90	4.35
Rural multi-party Business	4.90	5.00
Rural multi-party Residence	3.90	4.10
Paystations	6.00	6.25
Mileage charge on party line service outside the base rate area: Business or residence per ¼-mile of line beyond base rate area:		
One-party	.40	.40
Two-party	.20	.20
Four-party	.10	.10

No mileage charge on rural multi-party service.

V V

NW Bell Secures $125,704 Rate Raise in Nebraska

The Nebraska Railway Commission on June 10 authorized an increase in the Northwestern Bell Telephone Co.'s rates of $125,704.

The company had applied for an increase of $1,000,099 on January 19, 1954. The new rates became effective on June 13.

The authorized increase in revenues is obtained by reclassifying certain exchanges because of growth; the extension of the 10-cent paystation rate to the smaller exchanges, and from a revision of mobile service rates.

The commission examined several rate bases and selected an original cost rate base as of Dec. 31, 1953, which included plant under construction and material and supplies, but disallowed approximately $478,000 of the company's claim of $1,719,107 for cash working capital.

The commission found that test period (1953) earnings of $2,127,022 would be fair and reasonable, enable it to service its capital obligations and attract required future capital. These earnings are equivalent to 6.05 per cent on the above rate base.

V V

Commission Approves New Indiana Cooperative

Approval of the new Pulaski-White Rural Telephone Co-Operative was received recently from the Indiana Public Service Commission.

This included approval of incorporation of the new company, the purchase of the Star City Telephone Co., certificate of convenience and necessity to serve the area, approval of loan from the Rural Electrification Administration (REA), and selling of equity certificates.

The REA has agreed to loan the company $513,000, and plans are going forward to secure $39,500 in equity certificates from local residents.

The Star City-Pulaski exchange will be purchased from E. E. Hoover and his brother.

W. H. Price has been engaged as manager. Mr. Price stated that the entire system would be rebuilt with new equipment, lines, and telephones throughout.

Present officers are: President, Darwin Sayers; vice-president, Firman Haselby; treasurer, John Binkley; secretary, Darl Good; directors, Wayne Fitz, John Ploss, O. C. Price, Cecil Westerhouse and Milford Elliott.

V V

Two Louisiana Companies Granted Rate Increases

The Louisiana Public Service Commission recently authorized the Athens Telephone Co. to increase its rates from a $2.00 flat rate for all classes of service, to the schedule that follows:

One-party business	$4.50
Two-party business	4 00
Multi-party (rural) business	4.00
One-party residence	3.75
Two-party residence	3 50
Four-party residence	3.00
Multi-party (rural) residence	3.00

At the same time the commission authorized the following rate schedule for the Junction City (Ark.) Telephone Co. The company's Junction City exchange is partially in the state of Arkansas and partially in the state of Louisiana. Service in Louisiana yields about 39 per cent of the company's total business. Its new Louisiana rate schedule is as follows:

	Old	*New*
One-party business	$3.00	$4.50
One-party residence	2.00	3.00
Multi-party residence	1.50	2.00

V V

$120,000 Common, Preferred Issue Approved in New York

The New York Public Service Commission on June 23 authorized Trumansburg Home Telephone Co., Phelps, to amend its certificate of incorporation and to issue and sell 1,600 additional shares of common stock and 800 shares of 5 per cent preferred stock, each at

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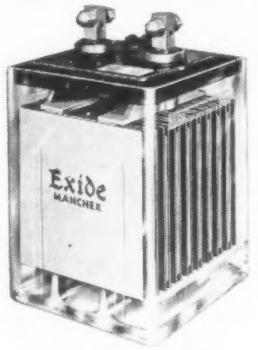

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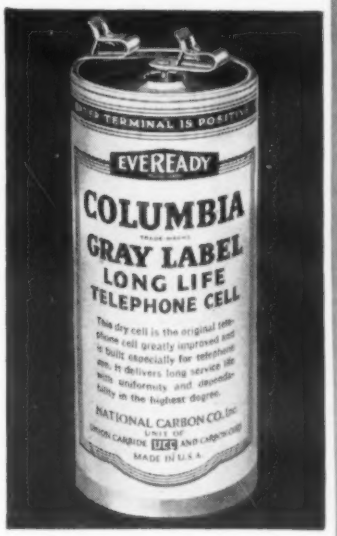

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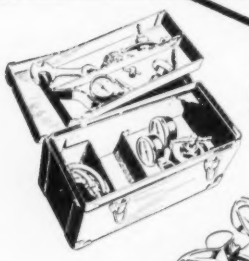
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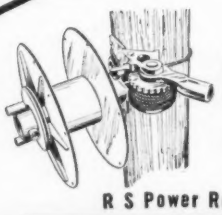
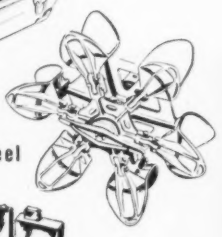
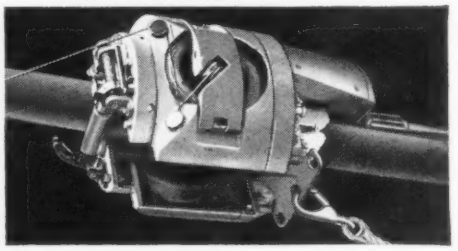
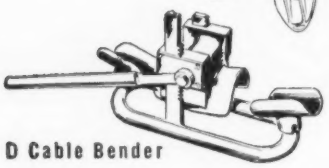

R S Power Reel


C R Power Reel

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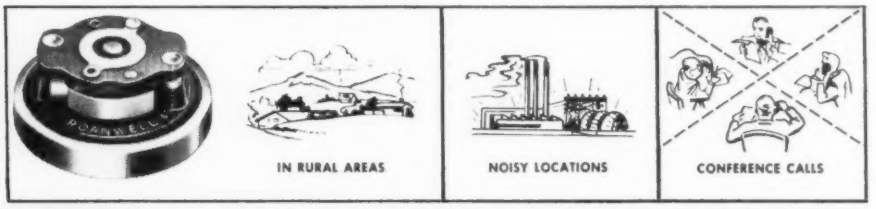
Now you can end subscribers' complaints of poor voice reception, quickly and inexpensively . . . with the new Roanwell RA-1H receiver. This new element supplies almost 4 times the acoustical energy and its output is about 5 d.b. higher, over the normal speech response range, than receivers commonly in use.

WRITE FOR DETAILED DATA SHEET



R/C Roanwell CORPORATION
662 PACIFIC STREET • BROOKLYN 17, N. Y.

a par value of $50. Proceeds of the sale, aggregating $120,000, are to be used toward the financing of a current $255,880 construction program.

The company serves about 2,830 subscribers in the towns of Ulysses, Covert, Lodi, Ovid, Hector, Enfield, Romulus and Varich, including the villages of Trumansburg and Interlaken, in Tompkins County. It has central offices in Ovid, Trumansburg and Interlaken.

Present stockholders have pre-emptive rights to the new issues. Shares not subscribed by them will be offered to company customers and the public generally. At a public hearing, it was testified that a large percentage of the stock to be issued has already been ordered by present stockholders.

V V

Four New York Companies Granted Rate Raises

The New York Public Service Commission has approved, along with rate increases for three other Independents, a tariff amendment filed by Citizens Telephone Co., Hammond, designed to increase rates by an estimated $2,052 annually. The company serves about 420 subscribers.

In filing its new rate schedule, the company reported that unless it was allowed to become effective, operations during the next year would be at a substantial loss due to increased operating expenses. The new rates become effective July 1.

A comparison of old and new rates is as follows: One-party residence service, increased from $3.25 to $3.75; 10-party rural, from $2.50 to $2.90. One-party business service was increased from $4.00 to $4.75; 10-party rural, from $3.00 to $3.50.

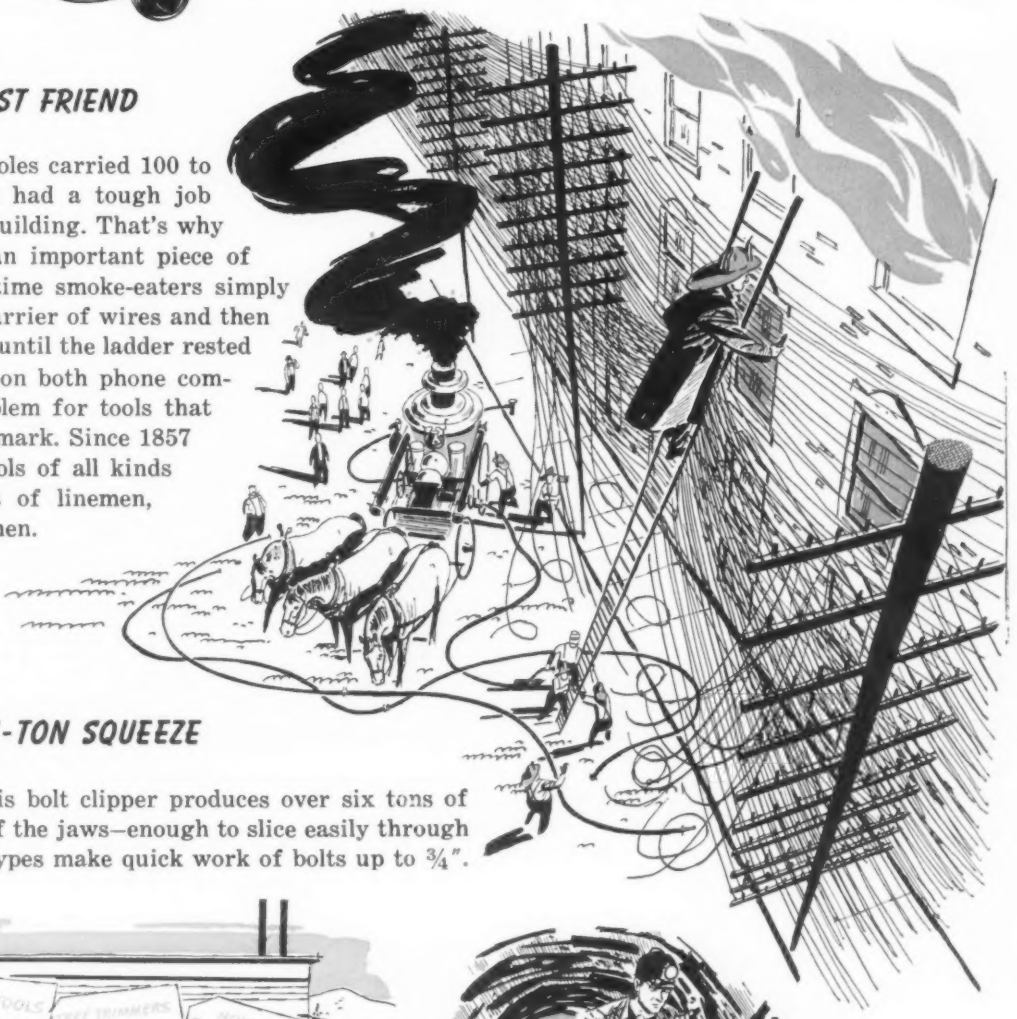
The commission has also approved a tariff amendment filed by Schoharie Telephone Exchange Inc., designed to increase rates by an estimated $2,750 annually effective July 1. This is the first revision of company rates since 1931.

During the past few years, the company, which serves about 600 stations in Schoharie, Davis Crossing, Vromans and Shutters Corners has undertaken an extensive plant rehabilitation program. Because of this and increased operating costs, it reported a need for additional revenue in order to continue to render adequate service.

Under the company's current rate schedule, service is provided at $2.50, regardless of the type service provided. Business service is billed, similarly, at $2.75. Under the new schedule, rates are established for each type service. They will be: One-party residence

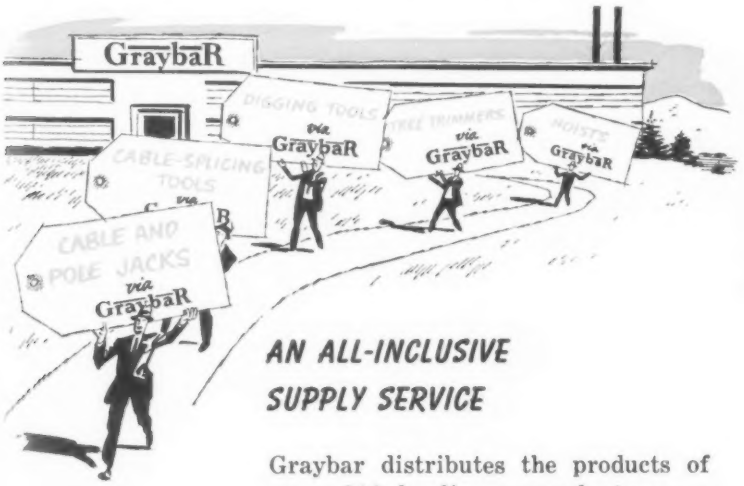
WHEN CUTTING PLIERS WERE THE FIREMAN'S BEST FRIEND

Back in the days when city poles carried 100 to 200 telephone wires, firemen had a tough job just getting near a burning building. That's why cutting pliers became such an important piece of fire-fighting equipment. Old-time smoke-eaters simply placed a ladder against the barrier of wires and then cut away strand after strand until the ladder rested against the building. Rough on both phone company and pliers, but no problem for tools that bore the famous Klein trade mark. Since 1857 Graybar-distributed Klein tools of all kinds have reliably met the needs of linemen, electricians . . . and even firemen.



A SIX-TON SQUEEZE

The leverage provided by this bolt clipper produces over six tons of cutting pressure at the heel of the jaws—enough to slice easily through a ¼" annealed bolt. Larger types make quick work of bolts up to ¾".



AN ALL-INCLUSIVE SUPPLY SERVICE

Graybar distributes the products of over 200 leading manufacturers—among them many of the best-known tool brands . . . tools that linemen need, know, and respect. By ordering from this single source, you save purchasing paper-work and assure the *fastest possible* deliveries. Remember, your local Graybar Representative will be glad to assist at all times.

EVEN SOLID ROCK CAN'T STALL IT!

Thor ½" portable drills get *really* rough treatment from mining companies. Using carbide bits, Thor drills bite out 1¼" holes in solid rock without stalling – ample proof of the strength of the Thor motor and gearing . . . proof, too, of its ability to handle the toughest pole-line construction job. The complete line of portable Thor drills, saws, grinders, hammers, nibblers is distributed by Graybar. 209-237

GRAYBAR ELECTRIC COMPANY, INC.
Executive Offices:
Graybar Building, New York 17, N. Y.

Call Graybar first for... GraybaR Quality *Everything in Telephone Supplies*

IN OVER 100 PRINCIPAL CITIES

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Eight years of better telephony with

ESCO

Ringing Machines
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Interrupters

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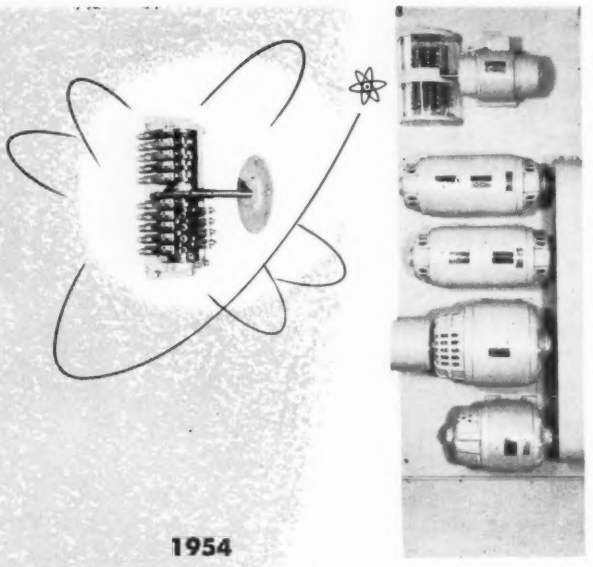
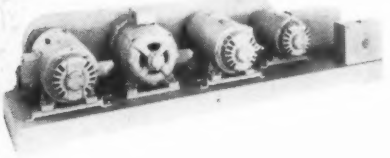


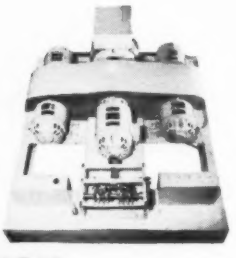
1954

Mar Vista, California. All connections at terminal board. Lubricated-for-life ball bearings throughout. Rugged, dependable construction. Equipped with coin controls — PLUS — A new and improved interrupter design. The pile-up is equipped with positive micro setting control of finger positioning. Another exclusive with ESCO



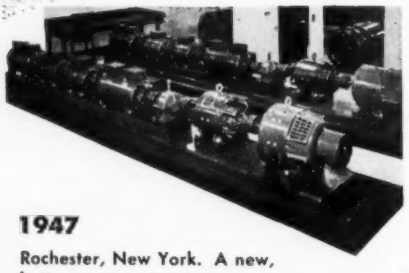
1951

Clarinda, Iowa. Simplified hook-up



1949

Oxnard, California.
Improved interrupter design



1947

Rochester, New York. A new, better motor generator set

MOTORS ★
GENERATORS ★
CONVERTORS ★
DYNAMOTORS ★
GENERATOR SETS ★

ELECTRIC SPECIALTY CO.
176 SOUTH STREET, STAMFORD, CONN.

Specify ESCO when ordering ringing equipment.

(common battery), $3.50; one-party (magneto), $3.00; four-party (new service classification) $2.75; rural (common battery) $2.75, and rural (magneto), $2.50. One-party business (common battery) is $5.00; one-party (magneto), $4.00; four-party (new service classification), $3.75, and rural, $3.75.

The commission also accepted a tariff amendment filed by Au Sable Valley Telephone Co. designed to increase rates effective July 1. However, the new tariff provides for the elimination of the surcharge for hand sets and will produce an estimated $13,680 additional annual revenue.

The company serves about 1,600 telephone stations through exchanges in Keeseville, Au Sable Forks, Upper Jay and Wilmington. The Keeseville exchange, largest of the four, was converted to dial operation in May and the switchboard previously used there is being installed at Au Sable Forks to provide better service through that exchange. Toll free service to the Peru office of New York Telephone Co. was provided when the Keeseville exchange was converted to dial operation.

The company reported that additional revenues are needed to offset recent wage increases and other higher operating expenses and because of the expense of its current plant rehabilitation program.

The commission also authorized a tariff amendment filed by Lockwood Telephone Co. designed to increase rates by an estimated $850 annually effective July 1. The company serves 110 stations in Lockwood and the surrounding rural area in both Chemung and Tioga counties.

In filing its new tariff, the company reported an operating loss in 1953 and said the higher rates were needed if it were to be able to continue to render adequate service.

During the past two years, the new owner of the company has undertaken an extensive plant rehabilitation program so that subscribers might receive proper service.

V V

Indiana Company Seeks Rate Raise, Stock Issue O.K.

Permission from the Indiana Public Service Commission for a rate increase and authority to issue $100,000 in first mortgage bonds and 500 shares of additional common stock was sought on June 19 by Southern Indiana Telephone Company, Inc., Aurora.

Company officials said the bond and stock issues were needed to cover construction and improvement expenditures since 1950.

The proposed new rate schedule would increase rates for subscribers at Lawrenceburg and Aurora, but would not affect those at Guilford.

V V

Nebraska Company Granted Rate Increases

Rate increases, ranging from $1.00 to $2.25, were recently granted the Hooper Telephone Co. by the Nebraska Railway Commission.

The commission denied the company's application for a "special charge of $10" for replacement of wall telephones with more modern sets.

REA LOAN APPROVALS

Concluded from page 19

Meadow River Telephone Company, Inc., Rupert, W. Va., $347,000, on June 16 to improve and extend existing rural telephone service in Greenbrier County.

The company is now furnishing magneto service to 377 subscribers over 100 miles of line through central offices at Rupert and Williamsburg.

The loan funds will be used to finance conversion of the existing system to dial operation, and to provide facilities to serve 414 rural families now without telephones. All of the existing line will be rebuilt and 63 miles of new line added.

Present plans call for continuing service without toll charge between the Rupert and the Williamsburg exchange areas.

Dr. James McClung is president and J. R. Campbell is manager of the Meadow River Telephone Co.

V V

Buy Texas Company; Plan Improvements

The directors of the Burnet (Tex.) Rural Telephone Co. recently announced the sale of company to J. B. McDuff, manager of the Aledo (Tex.) Telephone Co. and his associates, T. H. Odom, owner of the Merkel (Tex.) Telephone Co., and E. O. Kizer, owner of the Cross Plains (Tex.) Telephone Co.

It was reported by a local newspaper that Mr. McDuff will own the major interest in the enterprise, and will be resident manager.

W. H. Smith, a director of the Burnet company, said work will begin immediately on the improvement of the Burnet exchange by outside construction; installation of a dial system is also planned.

You may only think you're getting power-cross protection!

When a man installs a high-voltage arrester, he naturally assumes his lines will be securely protected against power-cross damage.

But he may only *think* so!

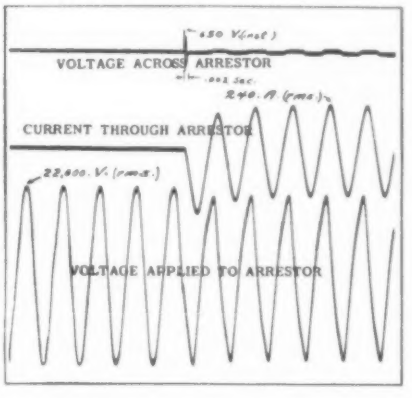
A low-resistance ground . . .

Unless he puts in a ground-rod long enough to reach the moisture level, he's asking for trouble. Ditto, if the rod is too short to reach moisture during dry spells. For in either case there will be times when he has very little power cross protection. A look at the formula E = RI shows why. (E = voltage after arrester operates, R = ground resistance, and I = current.) In theory, a 12,000-volt cross at 400 amperes should be reduced to 50 volts for *complete* safety, and to do this, the ground resistance could not exceed ⅛-ohm. In practice, it would be considered acceptable to merely reduce the 12,000-volt charge to a point where nearby substation protectors could handle it, and to do this, ground resistance should not exceed 2.5 ohms.

Now, for the high-voltage arrester itself: choosing a good one is no problem. Leading the field is Automatic's Type 56, which is proving very dependable in service. It contains an exclusive bi-metallic plate that bends and grounds the line. After the current is shut off, the plate resets itself. Eliminated are fast burning and frequent replacement of carbons.

. . plus Automatic's Type 56 High-voltage Arrester . . .

The following diagram shows how Type 56 stood up during a strenuous operating test. Note that a charge of 22,000 volts at 240 amperes was reduced to only 650 volts, which could be handled easily by substation protectors.



. . . equals sure power-cross protection

Order Type 56 Arresters today. Ask for Catalog T-4068-BPR31.

Cat. No.	Dimensions	Shipping Wt.
SB-97	7¾" high x 3⅝" high x 2¼" wide	2¼ lbs.

A product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: AUTOMATIC ELECTRIC SALES CORPORATION
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1033 West Van Buren Street, Chicago 7, U. S. A.

IN THE NATION'S CAPITAL

Concluded from page 18

ity is not subject to the 1946 law, under the opinion written in the Supreme Court decision on June 7 by Chief Justice Warren.

Another very effective form of lobbying, which is not and could not be covered by such a law, is the pressure put on Congress by administrative agencies. This was both direct and indirect. During the Truman administration, a considerable amount of the Interior Department's administrative budget was spent for press agents and the writing of elaborate reports for both public consumption and congressional committees. No law could ever reach such activity, which is often carried out under the mandate of Congress directing federal bureaus to report and advise Congress annually, or oftener, concerning their operations.

Strange Political Bedfellows

The controversial 1 billion dollar Upper Colorado River water storage project may produce an interesting realignment of political forces when a bill to authorize the administration-backed measure comes up for debate in the House. This was indicated by the minority report from the House Interior Affairs Committee, which favorably reported out the bill several weeks ago by a narrow margin of one vote, 13-12. The minority report is signed by six Democrats and three Republicans, all from large, tax-producing states, such as New York, California, Texas, Pennsylvania, and Florida.

Thus, the Republican majority was placed in the position of favoring a spending project opposed by the Democratic minority on grounds that it would put the government in the power business. The minority also criticizes the Colorado project as a concealed subsidy of over 1 billion dollars for the benefit of about 2,700 farms. It is noted that the bill put the government directly in the power business since two of the dams included in the project (Glen Canyon and Echo Park) are too remote to be of any use in irrigation and could be solely useful to produce power for sale.

The minority complained that the bill would grant authority to the Interior Department to build transmission lines all over the country, so long as they connect with a federal project now or hereafter to be built. The minority estimated that financing of the project will require power to be sold at the high rate of 6 mills per kilowatt-hour for the next 75 years. Finally, says the minority, the bill undercuts the Hoover Commission and makes drastic changes in existing federal water policy before the Hoover Commission has had a chance to review water and power policies.

Whether House Republicans will go along with their committee, in favoring a measure ostensibly at odds with the administration's avowed power policy, remains to be seen. One significant indication is that even Democratic members, usually in favor of government power expansion, are becoming sensitive to federal spending when they come from heavily populated and taxed states.

TAKE A BIG STEP TOWARD SAFETY WITH DUO-SAFETY LADDERS

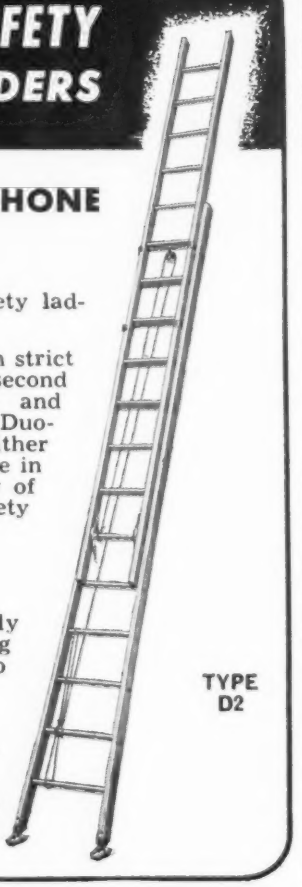
... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



TYPE D2

For Information, Contact Your Supply House, or

DUO-SAFETY LADDER CORP.
809 Ninth Street • Oshkosh, Wisconsin

PBX SERVICE ADVISER

Continued from page 28

is hampered by non-operating duties or by extension user practices.

It is well to remember . . . technical terms and slang do not impress the listener . . . rather, they do the reverse, creating a disbelief that the person can use good English and talk intelligently. Words are the tools through which we convey ideas and suggestions to others. We should use them well and maintain our dignity without being stiff, formal, overbearing or superior.

The customer management must be impressed with the value of a pleasant and efficient telephone service if we are to receive the most benefit from our contact work. Only with the management's complete interest and support can mutual benefits be fully realized and a desire created for complete cooperation on the part of all who use PBX service.

Whenever a telephone call will do as well, it should be made in preference to a visit. Telephone contacts can help to plan daily activities successfully, in obtaining the best results with well balanced schedules and plans so flexible the most important things to do will be done first.

The service adviser should always look her best. Neatness and cleanliness, with conservative dress and simple ornamentation, create respect as well as the admiration and confidence of others.

The length of time devoted to any one visit, of course, should depend upon requirements and prevailing conditions at the PBX switchboard. Some visits may require only a few minutes, others several hours. If the attendant is too busy to give the service adviser the needed attention, the service adviser, beyond making some observation pertaining to the service or equipment,

should make arrangements to return at a more opportune time and date.

And so we can summarize the service adviser's job . . . the accomplishment of PBX service objectives depends largely on the service adviser's sincere desire to assist her PBX people. It likewise depends upon her ability . . .

(1) To correctly understand company policies, practices and service objectives.

(2) To make effective use of the "tools" available, such as knowledge of equipment facilities, educational material, PBX instruction, etc.

(3) To exercise with good judgment the full service requirements and responsibilities of her job.

(4) To recognize that to the customer . . . "*She*" is the telephone company.

(5) To follow through on all contacts to the satisfaction of her PBX people.

V V

Richmond, Va., 28th City To Have Toll Dialing

The Bell Telephone System expanded its toll dialing operations on June 27, with the cut-over to service of a new 4A cross-bar switching system at Richmond, Va.

The 4-million-dollar installation, a joint undertaking of The Chesapeake & Potomac Telephone Co. and the Long Lines Department of American Telephone & Telegraph Co., will make Richmond the 28th city to have a long distance switching system.

Ultimately some 65 such telephone crossroad centers are planned as part of a national long distance dialing network, according to Long Lines. More than 2,900 cities and towns are now on the long distance dialing network and more than half the calls at long distance switchboards are being dialed through to distant telephones by operators.

About 4,000 to 4,500 additional telephone messages per average business day are expected to be handled by Richmond by the end of the year. Much of this telephone traffic is now handled through Atlanta, Washington and other telephone centers in the region.

V V

Tenn. Company Incorporated; Stock Issue Approved

The office of the Tennessee Secretary of State recently issued a charter of incorporation to the Houston County Telephone Co., Erin.

The company, whose incorporators were H. L. Austin, Annie Marie Austin, L. C. Austin, J. H. Austin and Mrs. Treva Murrell, was authorized to issue a maximum of $25,000 in common stock and $10,000 in preferred stock.

1500 pounds

MINIMUM COMPRESSION RESISTANCE OF DROP WIRE

Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY
NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

GLOSSARY OF TELEPHONE WORDS

Continued from page 24

Coil, Hybrid. Four-winding repeating coil so wound and so connected that incoming and outgoing currents in a two wire path are separated and kept from interfering with each other.

Coil, Induction. Small transformer in a subscriber's set which transforms varying direct current in the transmitter circuit to alternating current in the line. It also matches the impedance of the line to that of the transmitter and receiver, and controls the sidetone.

Coil, Loading. Coils of wire around a magnetically permeable core constituting inductances which can be inserted in a circuit at regular intervals to improve transmission.

Coil, Phantom. Originally, a coil used in a phantom circuit for impedance matching. Now, generally, any coil, side or phantom in a phantom circuit. When the term is used, the meaning should be made clear.

Coil, Repeating. General term for a transformer in a speech or signal circuit.

Coil, Retardation. A choke coil. See **Choke Coil.**

Coil, Side Circuit. One of a pair of repeating coils used on each of two pairs of wires to derive a phantom circuit.

Coil, Simplex. Repeating coil used on a pair of wires to derive a simplex circuit.

"Come Along." Strand puller, which see.

Commutator. Assembly of conductors, insulated from each other, over which a brush moves to make a contact with each in turn.

Compandor. Device which combines the functions of a "compressor" with an "expandor." Permits the transmission of a signal having a small volume range.

Composite. Method of deriving two direct current telegraph circuits from a telephone circuit without mutual interference.

Compressor. Electrical device which compresses the volume range of a signal.

Comprise Net (Network). Network, employed in conjunction with a hybrid coil to balance a subscriber's loop, which is adjusted for an average loop length or an average subscriber's set, or both, to secure compromise (not precision) isolation between the two directional paths of the hybrid.

Condenser. Device consisting of two large plates separated by an insulator (Dielectric) capable of storing and returning an electric charge.

Condenser, Electrolytic. Condenser, usually of large capacity, which depends upon a very thin chemically formed dielectric.

Conductor. (1) Material which permits the passage of an electric current and which has relatively low resistance; (2) that part of an electric transmission, distribution or wiring system which actually carries the current; (3) line wire in an open wire system; (4) metallic conductor in a cable. This is always copper, in telephone use, and covered by an insulator or insulating medium.

Conduit. As used underground. A tube, usually of tile, possibly of steel, wood or other material, which is placed in the ground to form ducts through which cables can be passed.

Connection, Loose. Fastening of a conductor to a piece of equipment or of one conductor to another which is insecure and gives an uncertain contact.

Connection, Rosin ("Rosin Joint"). Connection of a conductor to a piece of equipment or another conductor, supposedly securely soldered, but actually held together by rosin flux.

Connector. Switching mechanism for connecting a trunk to a subscriber line or other line. It may be designed to hunt for an idle terminal.

Connector, Bridging. Screw fastener for joining drop, bridle or other wires to open wire conductors, or to fasten two open wires at a test point.

Connector, Dial. See **"Connector."**

Connector, Test. (1) Device, usually operated by a spring, to connect the leads from portable meters and apparatus to other equipment or conductors; (2) connector controlled by an operator or from the testdesk to connect them to a subscriber's line. It is not arranged to hunt.

Constrictor, Cable Sheath. Tool for creasing rings in cable sheaths when making gas tight plugs.

Contact. Part of an equipment, usually an alloy, sometimes of silver and platinum, designed to touch a similar contact to permit current to flow, or designed to break this union to cause a current to cease, all under predetermined controls.

Contact, Back. Relay, key, jack or other contact designed to close a circuit and permit a current to flow when, in the case of a relay, the armature has released or fallen back and in other equipment when it is in an unoperated position.

Contact, Front. Contact on a movable member which closes a circuit when the associated device is operated.

Contact, Normal. Contact which closes a circuit, permitting current to flow, when in its usual position.

Contractor. In gas pressure, a device acted on by changes in gas pressures to open or close a signal circuit.

Control, Circuit. Authority assigned to a specific office on a toll circuit to direct over-all service continuity operations.

Convention. Symbol which may represent anything selected as long as it is agreed on.

Cord. Flexible conductor, or several conductors under one cover, equipped with terminals.

Cord, Back. In a switchboard, the cord, of a pair, nearest the jackfield.

Cord, Front. In a switchboard, the cord, of a pair, nearest the operator.

Cord, Patch. Cord equipped with one or more conductor plugs at each end for interconnecting jack terminated equipment.

Cord, Switchboard. Plug ended cords, usually in pairs for completing telephone connections.

Cord, Test. (1) A cord used for testing; (2) the cord end at a frame, of a trunk to a testing position.

Core. (1) The magnetic material inside a relay or induction coil winding; (2) all the conductors of a cable inside of a sheath.

Core Hitch. Attachment to a cable core to permit pulling it into a duct without damaging the sheath.

Corner. In pole line work, the point at which a line changes direction, requiring special construction.

Count. Numerical sequence of pairs in a cable as terminated on the protectors or elsewhere in a central office.

Count, Actual. Count described in "Count" as distinguished from the "Theoretical."

Count, Theoretical. Count which gives the actual position of a pair in its own sheath, always accompanied by an "Actual" count giving its position on the main frame.

Count, Usage. Enumeration of the number of times a circuit or piece of apparatus is used in a period of time.

Counter-EMF Cell. Nickel and sodium hydroxide cell used to oppose the voltage of the central office battery.

Coupling. Association of two or more transmission lines or equipment components in such a manner that power is transferred from one to another.

Creosote. Oil obtained by distilling coal tar or wood tar. Used to preserve wood, particularly poles.

Cross. An accidental contact between wires of different pairs.

Cross-Bar. Switching system using mechanisms called "Cross-bar switches," consisting of rectangular fields of contact springs operated in coordination by horizontal and vertical members.

Cross-Connections (Slang: Cross-Cuts). Loosely run wire between equipment and circuit terminals arranged to be changed or removed easily.

Cross Modulation. Unwanted modulation produced by one carrier, altering, in some manner, another carrier.

Crossfire. Interference from one telegraph circuit to another telegraph circuit, or which causes the faulty operation of the relays in a telephone circuit.

Crossing, Railroad. In pole line work, the place where the line crosses over a railroad, requiring special clearance and strength.

Cross-Talk. Voice communication heard in a given circuit originating in an adjacent circuit.

Crystallization. In lead cable sheaths, a condition where the smooth consistency of the lead is changed to small, sharp granules due to age, temperature changes and movement.

Current. Technically, the drift of electrons past a reference point. The passage of electrons through a conductor. Measured in amperes or parts of an ampere.

Current, Alternating (AC). Flow of current which reverses in direction in a regular manner.

Current Amplifier. Current amplifier is an amplifier capable of delivering considerable current at a low voltage.

Current, Direct (DC). Current which flows in one direction only with no appreciable pulsing.

Current, Sneak. Current which, while not particularly excessive, is above the carrying capacity of the equipment through which it flows.

Curves, Gas Pressure. Plot on special paper of pressure read at selected valves in a gas pressure system (vertical) against the length of the cable (horizontal); used for locating leaks.

Cut. To disconnect, to open a circuit so that communication cannot be carried on.

Cut-Off. Frequency at which the transmission loss exceeds by 10 db the loss at 1,000 cycles.

Cut-Off Frequency of Amplifier. That frequency or those frequencies at which the normal gain of the device begins to decrease sharply.

Cut-Off Frequency of Filter, Equipment, Etc. That frequency or those frequencies at which the attenuation begins to rise sharply.

Cut-Out. Pairs brought out of a cable and terminated at a location other than at the end of a cable are said to be "cut-out."

Cut-Over. Rapid transfer of subscriber's lines from one termination to another.

Cuts-Off. Fails to permit satisfactory transmission above, or below, a specific frequency limit.

Cuts-Out. Interruption of communication as when an open occurs. Implies a come and go condition.

CX. Abbreviation for "composite."

CXR. Abbreviation for "Carrier." Also **"Carr."**

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Bell to Offer Telephone With Light-Up Dial

The Bell System is reported to be getting ready to offer to the public a telephone instrument with a flashlight bulb that illuminates the dial when the handset is lifted.

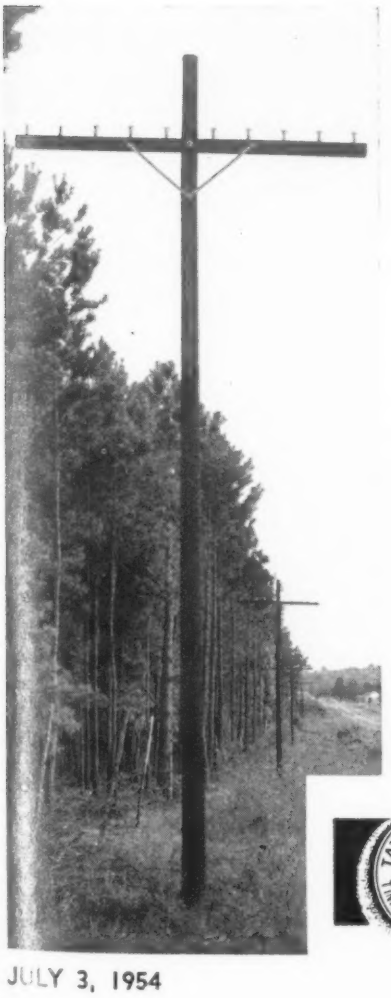
The light is powered by a 6-volt transformer that plugs into an electric outlet. A transparent finger-wheel distributes the light over the numbers on the dial.

The company says that possible users of the lighted telephone will be: A mother watching a sick child at night; a doctor who wants to make a midnight call from a bed without disturbing his wife; a householder who hears noises and wants to call the police quietly; a TV viewer who wants to use the telephone without turning on the room lights.

It is also reported that the Bell System companies will offer to the public colored telephones in the following eight hues: ivory, green, red, gray, beige, brown, yellow and blue. It was understood that two-tone combinations also will be available.

(EDITOR'S NOTE: Independent manufacturers, for many years, have offered to Independent operating companies telephone instruments in various colors.)

A possible future advance hinted in Bell System technical publications:



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Detailed information on required sizes for various rural line loadings and span lengths will be gladly furnished. Tell us your plans and we'll do our best to help.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois.

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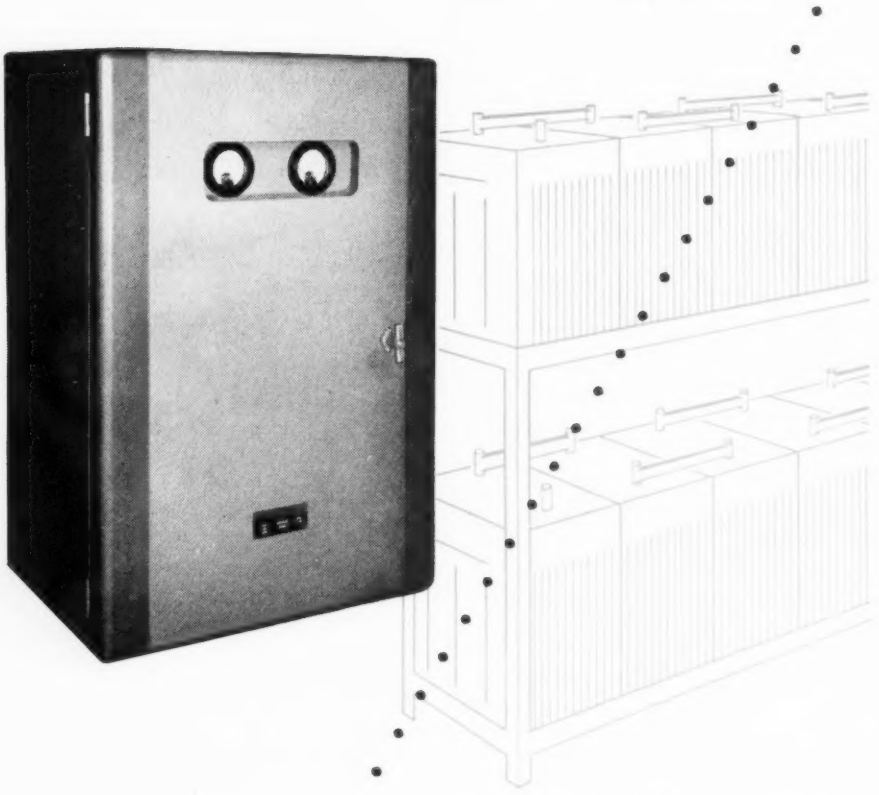

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To provide extreme accuracy of electronic control and the exceptional reliability demanded by this type of service, Power Equipment engineers designed this PEC-626 Automatic Battery Charger by starting with the rugged components of a manual charger, then added a magnetic system for coarse voltage control and a simplified electronic system for fine voltage control.

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Exceptional reliability is shown by the fact that if the electronic control section should be disconnected, the magnetic control section will still automatically hold the output voltage to within ± 3 percent of nominal voltage.

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"Pushbutton calling instead of dialing —a method now used by long distance operators, who have a bank of 10 buttons at their switchboards and who push them in rapid succession, instead of spinning a dial, to call a telephone in another city."

While the new pushbutton telephone is not yet ready for the public, a recent Bell publication shows a picture of an experimental telephone instrument, which has 10 pushbuttons replacing the familiar dial.

V V

Pa. Company Converts First of Eight Exchanges to Dial

The North-Eastern Pennsylvania Telephone Co., Forest City, Pa., recently converted its Clifford exchange to dial. The Clifford exchange serves 415 stations.

This is the first step in their dial conversion program which is expected to be an expenditure of approximately three-quarters of a million dollars. The next conversion is expected to take place late this year at Pleasant Mount, Pa. Other exchanges to be converted on the schedule of dial conversions are Uniondale, Harford, Jackson, Thompson, New Milford and Forest City. The company furnishes service in parts of Wayne, Susquehanna, Lackawanna and Wyoming counties to over 2,900 stations, through eight exchanges.

The conversion was the culmination of planning and engineering and rehabilitation of the telephone property which started in 1952. To accomplish the conversion, it was necessary to erect a new brick fire-proof building at Dundaff, which is the wire-center, install 150 lines of Kellogg X-Bar automatic and construct 7 miles of cable and rewire all stations, as well as place new telephones in all homes and business places, at an estimated cost of $150,000. This cable construction provides as near storm-proof plant as possible for toll trunks to Scranton and Carbondale.

V V

Pioneer Group's Gary Chapter Holds Second Annual Barbecue

The second annual barbecue sponsored by the Theodore Gary Chapter of the Independent Telephone Pioneer Association, was held at Busch's Lake south of Jefferson City, Mo., on June 26.

Over 100 persons from all parts of the state were in attendance and voted the affair better than last year.

In spite of a 100° temperature, participants enjoyed a pleasant afternoon and evening. Some fished, some went swimming, but the majority just visited. The film, "Missouri, The Land of Diversity," sponsored by the Missouri

Division of Resources and Developments, was shown.

Those in charge of arrangements were F. B. McHenry of Jefferson City, chapter president; George A. Hearne of Kansas City, and Col. C. W. Gottry of Columbia, barbecue committee members; and Miss Katharine A. Bauer of Jefferson City, chapter secretary-treasurer.

V V

NBFU Reports Fire Losses Decrease 3.0% in a Year

Estimated fire losses in the United States during May amounted to $62,282,000, it was reported recently by the National Board of Fire Underwriters (NBFU).

According to Lewis A. Vincent, NBFU's general manager, this $62,282,000 loss represents a decrease of 3.0 per cent over losses of $64,239,000 reported for May, 1953, and a decrease of 20.1 per cent from losses of $77,933,000 for April, 1954.

Losses for the first five months of 1954 now total $390,457,000, an increase of 7.1 per cent over the first five months of 1953, when they amounted to $364,437,000.

These estimated insured losses include an allowance for uninsured and unreported losses.

V V

McHugh Named to Management Association Board

Keith S. McHugh, president of the New York Telephone Co., was elected to the board of directors of the American Management Association (AMA) at the annual meeting of the group on June 23.

The 18,000-member business educational association elected 10 directors for three-year terms and filled an unexpired director's term at the business meeting held in conjunction with AMA's general management conference.

V V

Graybar Elects Director, Names Branch Managers

D. Wallace, district manager at Pittsburgh of the Graybar Electric Co., was recently elected a director of the company at a meeting of the board of directors.

Mr. Wallace has been with the company for 32 years, starting as an assistant accountant at Seattle. He transferred to New York in 1923 where he rose through the positions of accountant, senior accountant, assistant secretary and assistant merchandising manager.

In January, 1938, he was appointed

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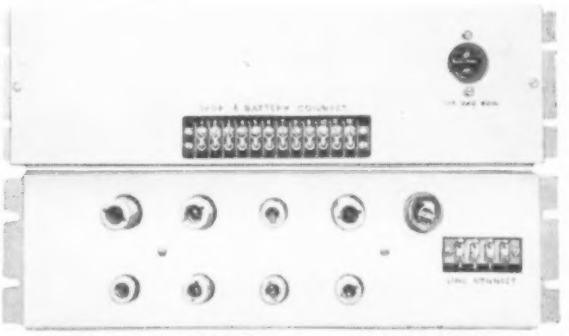
$1180. per Complete Channel

(Includes office terminal shown above and remote terminal similar in appearance but not illustrated.)



OFFICE TERMINAL – REAR VIEW

Type S-1 Subscriber Carrier

We've commenced full-scale production of S-1 Subscriber Carrier. Deliveries will be in full swing before the end of July.

Let us clarify pricing and ordering information: Price remains $790 per carrier channel. Careful and complete testing has proven desirability for separate combination power supply-signaling-termination unit. Price is $390 per channel.

All orders will be filled in the order received and may be placed with Graybar or direct if desired. All McElroy equipment is sold on 30-day trial and carries one year guaranty on components.

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district manager at Jacksonville, returning to New York in October, 1940, as assistant general sales manager, becoming general communications and merchandising sales manager in January, 1943. He became district manager at Pittsburgh in September, 1943.

Mr. Wallace is a member of the Chamber of Commerce, Engineer's Society and Sales Executive Club.

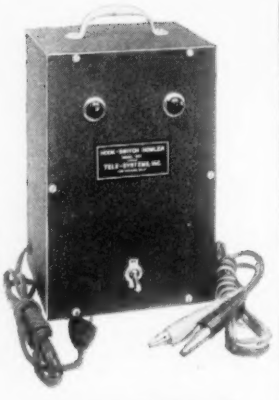
T. E. Mahan has been appointed manager at Louisville, Ky., succeeding C. H. Brown, who has been manager at Louisville since 1939. Mr. Brown will retire on service pension. Mr. Mahan has been manager at Columbus, O., since November, 1952, and has been with Graybar since 1923. His new assignment becomes effective on Sept. 1.

M. P. Johns, who has been manager-inside construction sales at St. Louis and has had 15 years of service with Graybar, will take over the Columbus, O., management on Aug. 15.

V V

"To choose time is to save time: and an unseasonable motion is but beating the air. There be three parts of business—the preparation, the debate or examination, and the perfection: whereof, if you look for despatch, let the middle only be the work of many, and the first and last the work of few." —BACON.

New!



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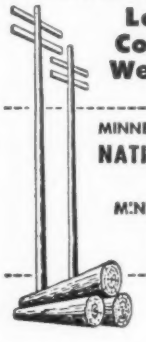

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Montana Pole & Treating Plant, Butte, Montana. — PENTA Lodgepole Pine & Western Larch Poles. Pressure or Non-Pressure Treatment.

T. M. Partridge Lumber Co., 731 Lumber Exchange, Minneapolis, Minn. —Northern white and western red cedar poles, creosote and pentachlorophenol treatments.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

At a recent meeting of the board of directors of National Pneumatic Co., Inc., and Holtzer-Cabot Divisions, RICHARD H. FROST was elected director and executive vice president. Mr. Frost joined the company in 1947. Prior to his present position, he was assistant to the president. Mr. Frost also is a director of the Redmond Co., Inc., Owosso, Mich.

Dierks Installs New Penta Treatment Cylinder

Dierks Lumber & Coal Co. has announced that it has installed a new cylinder for treatment of poles and other lumber products with pentachlorophenol (Penta).

According to W. J. Butler, sales manager for Dierks' treating division, the new penta cylinder is 115 feet long with an 8-foot diameter. Dierks is now able to increase its over-all pole capacity over last year when it turned out 100,000 poles and piling and large quantities of lumber.

V V

"We used to think that the so-called cultural subjects could be left to the studious few; that most of us could learn one trade well and safely ignore all other branches of learning. Business has discovered that was a mistake. Today it is sending junior executives back to school to learn history and economics and sociology, or else it is importing educators to conduct classes in its own plants."—RICHARD L. BOWDITCH, *president, Chamber of Commerce of the United States.*

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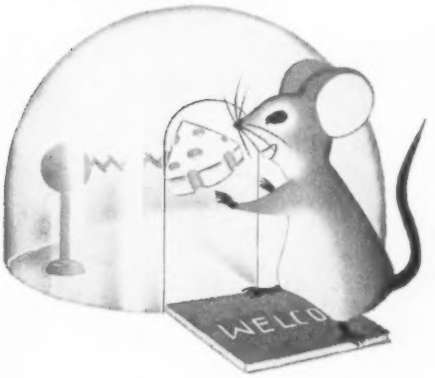

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Model 1200B

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They've found, too, what it can mean to have a charger which doesn't require attention, one they can depend on to do its job, year in and year out, without costly and annoying routine maintenance or adjustment.

For complete information, write for Bulletin 160, which describes the single-phase models, from 1/2 ampere to 24 amperes, and Bulletin 161 which covers three-phase models from 25 amperes to 200 amperes.

* *No good on mice.*

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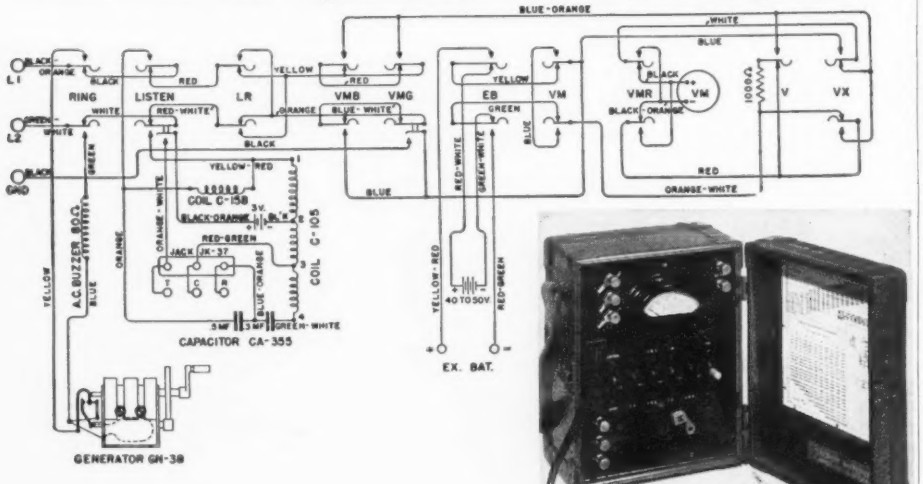

WIRE CHIEFS TEST SET (Signal Corps)

EE 65 (F) Late Type 7½"x9"x11"

A complete test set for maintaining LB wire plant. Also used in CB line testing. Meter gives accurate reading DC voltage to 50 volts and resistance from 22 ohm to 2 megohm. Built-in LB telephone anti-side-tone circuit with hand generator for signaling and ring-out tests. Grounds, shorts and opens may be quickly determined and located through table on inside cover. Illustrated manual with complete instructions for use included.

Battery compartment accommodates two flashlight cells and two 22½ volt radio batteries. (Not furnished.)

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